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Eliminating Skilled Foundry Labor

Special Machines and Conveyors Result in Producing 500
Chevrolet 4-Cylinder Castings Per Day with Only
17 Semi-Skilled Men and 28 Flasks

BY F. L. PRENTISS

SIMULATED by the increased activity demanded by a war-time emergency, development in efficient foundry production took on a new impetus in 1918. Added to this, the tremendous strides made in mass production by the automobile builders of the United States since that time has compelled a continuance of foundry equipment development to keep abreast of this industry's requirements.

Many foundry engineers have been applying their ingenuity to the problems of various departments of foundry production. A majority have centered on the matter of the handling and transportation of raw materials and finished product; others have made much progress in the specific line of molding machine production. The ultimate goal to be reached, so far as a complete installation is concerned, would therefore be a combination in one plant which would embrace the development in both these branches of engineering endeavor—the serving of high-speed production machines with handling devices for material and equipment.

This combination of operations has reached a high state of perfection of operation in the plant of the Ferro Machine & Foundry Co., Cleveland, and while in

some instances an installation of this sort could be materially improved in its layout if installed in new buildings, the equipment as now in operation at the Ferro plant, in less modern type foundry buildings, is a distinct achievement.

Two-a-minute is the scheduled output of automobile cylinder castings on one molding unit, with continuous pouring and molding, at this plant. The unit which is used for making Chevrolet cylinder castings, weighing 110 lb. each when cleaned, occupies a floor space of 30 x 160 ft. For a few months a single molding unit with two machines, one for the cope and the other for the drag, together with the necessary conveying and other equipment, has been making these four-barrel cylinder castings at the rate of about 500 in 8½ hr. This unit has been extended and duplicate molding equipment added, with which it is expected that a speed of 120 per hr. can be obtained. Two other molding units for motor car cylinders have just been completed, and the daily capacity of the three units will be 1500 or more cylinder castings per day.

Large daily production with ordinary foundry practice meant large floor space for



Chevrolet Cylinder Molds Are Made on Four Duplicate Machines. Two for the Cope and Two for the Drag. This is a new model Stoney jar, ram, squeeze stripping plate machine of the pillar type with a rotating squeeze head. This picture of the drag machine, with the stripping plate down, shows the pattern and the squeeze head swung back. An air hoist on the monorail lifts the drag flask from the return roller conveyor shown at the right and places it on the machine. Then by means of a lever the spout is swung into place under the sand hopper above

molding, many molding machines, patterns, flasks and other equipment in large quantities. To increase output, reduce molding floor space and lower production costs, the Ferro company has given great attention to foundry production methods, including the development of efficient handling systems, of semi-automatic molding machines for continuous operation and the laying out of units for large production of duplicate castings, with which continuous pouring and molding could be employed. Various molding units were installed which were either later improved or discarded entirely for betterments that would further increase output and decrease costs by the elimination of skilled labor.

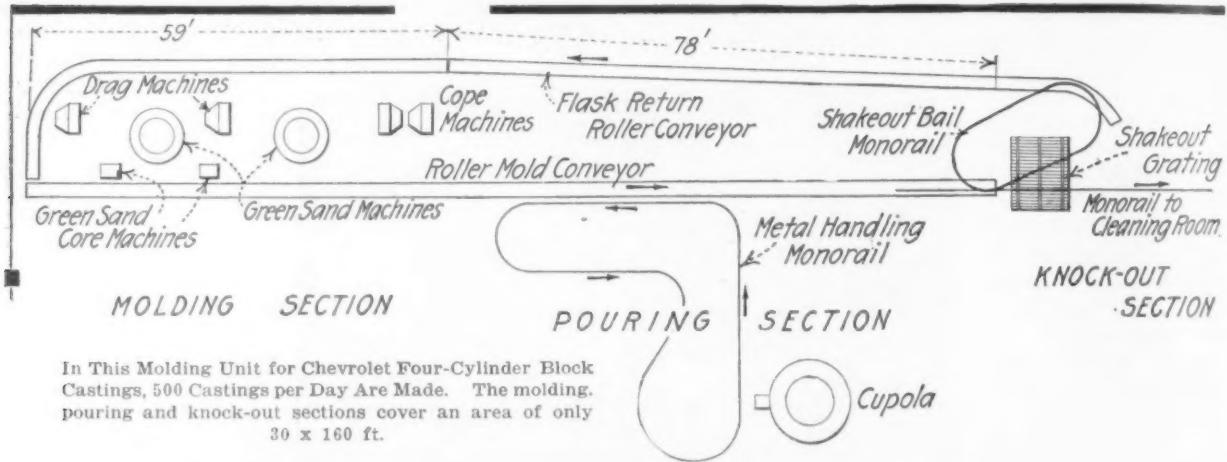
About four years ago the company placed in operation a unit for the continuous production of Fordson tractor transmission housings, which was described in THE IRON AGE, Sept. 18, 1919. An outstanding feature in this unit was the use of green sand cores made on the foundry floor and placed in the mold by the machine. This machine was designed and built by J. T. Stoney, vice-president and foundry manager of the Ferro company, who has since developed a number of other types of molding machines, designed for the rapid production of duplicate parts without the use of skilled labor. A sprocket type of continuous moving power conveyor was used with this system for handling the molds, and

tion of sand-handling costs are being effected by the use of green sand cores.

Probably the most conspicuous feature of the plant today is the new Chevrolet unit, which has replaced the one referred to above and which was placed in operation recently. This unit was started with one drag and one cope machine, these machines being duplicates. On this unit 500 or more castings were made per day in slightly over 8 hr. with a crew of 17 men, who did the core setting, clamping, pouring, shaking out and placing the castings on trucks ready to go to the cleaning room. No journeymen molders are required and none of the labor employed can be classed as better than semi-skilled labor.

This unit has recently been made into a double unit by extending the roller conveyor, additional shake-out arrangements and the installation of another cope and drag machine. In addition two machines are provided for making green sand cores. When this outfit is in full operation it will produce an average of 1000 cylinder castings daily.

At present some of the upper halves of the crankcase and cylinder barrel cores, made integral, are made in dry sand, but it is planned eventually to make these entirely of green sand. As only 28 flasks have been used in making 500 molds per day, each flask being used 18 times, it is expected that only 60 flasks will be



sand-handling equipment was provided for treating the sand and returning it to the molding machines.

The next development was the building of a unit for making Hupmobile four-cylinder castings, with which was used a plate type power conveyor for handling the molds. The sand was handled in a continuation of the sand-handling system provided for Fordson tractor housings. For use with the Hupmobile unit, Mr. Stoney developed a double molding machine on which both the cope and drag were made simultaneously. With the use of this machine an output of 25 cylinder castings per hour was obtained. His next step was the addition to this unit of a special machine for the making of crankcase and cylinder barrel cores in green sand.

Next came the provision of a molding unit for the production of Chevrolet cylinders. In this roller conveyors were substituted for power conveyors and the roller type conveyors are now used with one exception throughout the plant. For this unit another Stoney type machine was developed, a single machine, one being used for the cope and the other for the drag.

The plant is now equipped with six independent molding units for production work, one each for the Chevrolet, Hupmobile and Paige cylinders, two for pistons and one for cylinder heads, flywheels, etc. These units occupy the bulk of the foundry floor, space being provided in the side bays for small work not on a high production basis. With the use of the continuous molding units the company has increased the efficiency of its floor space approximately 300 per cent over the old system requiring floor space for molds. A production that under old methods would require 500 flasks takes only 30 flasks, and important economies in the reduc-

required in making 1000 molds per day. This production will be attained with two sets of patterns. Pressed alloy steel flasks made by the Truscon Steel Co. are used, with inside dimensions 30 x 21 x 9 in. for both cope and drag.

The conveying equipment includes two nearly parallel roller conveyors, one for carrying the molds and the other for the return of the empty flasks. Overhead trolleys and pneumatic hoists are used to handle the flasks to machines and conveyors.

Chevrolet cylinder castings are made on a Stoney jar, ram, squeeze and stripping machine of the pillar type with rotating squeeze head, built by the Stoney Foundry Engineering & Equipment Co. Empty flasks are handled to the machine and onto the roller conveyors at the side of the machine by pneumatic hoists hung on hand-operated trolleys that travel on a light overhead tramrail system. An empty drag, lifted from the return conveyor by a bail suspended from a hoist, is pushed on the monorail to a point over the drag machine.

When the flask is placed on the machine the operator pulls a lever, which swings a spout from the sand hopper over the flask and opens the hopper gates, allowing the sand to flow. The jarring mechanism is then started by means of a knee valve and, when the mold is jolted, this valve is released and the squeeze head is thrown into position over the mold. A squeeze valve controlled with a foot lever is then operated, raising the mold against the head, thus eliminating butting off by hand. When the foot is raised from the lever the mold table drops and the squeeze head is swung back. The pattern is stripped by an air cylinder controlled by a hand valve. The drag is then placed on a bottom



An Oval Shaped Overhead Monorail Equipped with Two Trolleys and Air Hoists Extends over the Lower End of the Mold and Return Conveyors and Shake-Out Grating, the Latter at the End of the Mold Conveyor. The hoist lifts the cope from the mold conveyor and swings it over the grating. Speed in shaking out the cope is obtained by the use of a Stoney shake-out ball with vibrators in the hook, suspended from the air hoist. With this ball a cope is shaken out in about four sec. Then the hoist places the cope flask on the return conveyor at the right. Another hoist on an adjoining track picks the casting from the drag and a hoist on the circular track carries the drag flask to the return conveyor

plate on the mold conveyor, the mold being rolled over in the bail. The mold is then ready for the dry sand core setters, three of whom are required for each unit.

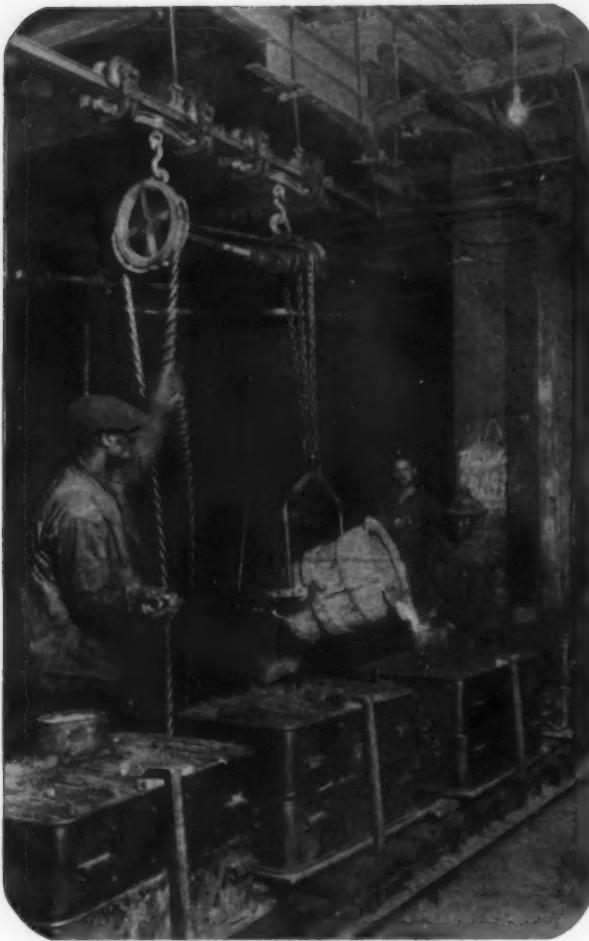
When made in green sand the upper half of the crankcase and cylinder core is made on a plain roll-over machine, fitted with Stoney equipment for making green sand cores. After the green sand half is rammed the dry sand half is placed on the green sand half, forming a complete crankcase and cylinder barrel core. The lower jacket is then placed in position over the dry sand core. Then the drag half of the mold is lowered over the core and located by means of pins. Air clamps hold the drag flask in position by means of the trunnions until the flask and core box are

rolled over. The air clamps are then released and the core box containing the green sand half of the core is drawn away. The drag mold is then placed on the conveyor and the dry sand top jacket and gear end cores are placed in position.

The mold then moves to a position under the cope monorail, where the copes are placed. Then the mold is clamped and the clamps are tightened with an iron wedge. The molds then move along the conveyor to the pouring zone. Iron is handled from the cupola in 1500-lb. ladles, from which it is poured directly into the molds. The ladle is handled on a monorail by a chain hoist with extended controls for raising and lowering when pouring. After pouring, the molds are

New Design of Stoney Jar, Ram, Squeeze and Stripping Machine Used in Making the Hupmobile and Paige Cylinder Molds. This is a double machine, the cope being made on one side and the drag on the other. The two flasks are stripped simultaneously, but the other operations are not in unison. A feature of the machine is its ability to squeeze large molds. In the picture the drag side of the Hupmobile mold is being squeezed while the cope side is being jolted





Pouring Section of the Mold Conveyor. Iron is poured from a 1,500-lb. ladle in which it is handled from the cupola on a chain hoist operating on a monorail, the hoist having extended control for raising and lowering

moved a few feet to the end of the conveyor, at the end of which the shake-out grating is located.

One problem has been to get the sand away from the molds and back into the system, and the flasks back to the return conveyor, with sufficient rapidity to permit the operation of the molding machines at maximum speed. This required a rapid method in shaking out the molds, to accomplish which Mr. Stoney designed and patented a shake-out bail with vibrators

built into the hooks. Over the shake-out grating is an elliptical monorail equipped with two trolleys carrying air hoists, to which are attached the shake-out bails, the air hose swiveling at the center of the circular track.

The hoist picks up the cope from the conveyor and swings it into place over the grating, when the sand is shaken out in about 4 sec. One shake-out bail handles 500 flasks easily in a day. After shaking out, the bail passes the cope flask to the return conveyor. The casting is picked out of the drag by an air hoist on a track paralleling the other, placed on trucks and hauled by tractor to the cleaning room.

Cores are knocked out on a machine, designed by Mr. Stoney, which has a sliding table carrying jaws on one end and fitted to a heavy duty Stoney vibrator. The casting is placed between the jaws and an air cylinder pushes the table with the movable jaw against the casting, locking it so that when the vibrator is turned on the full effect of the vibration is delivered to the casting. Four of these machines will be placed in a separate building. After the cores are knocked out the castings will be removed to the cleaning room. The core sand will fall to a belt conveyor under the machines and thus delivered to a storage hopper over a railroad track. From the hopper it will be discharged either into railroad cars or dumped into trucks. The belt conveyor, after leaving the machines, will be brought up above the floor level to a height convenient for workmen to knock out the core rods. The remainder of the material will then pass over a magnetic pulley, which will separate the remaining pieces of metal from the sand. With this machine the burnt core is removed from the cylinder casting in 6 to 12 sec.

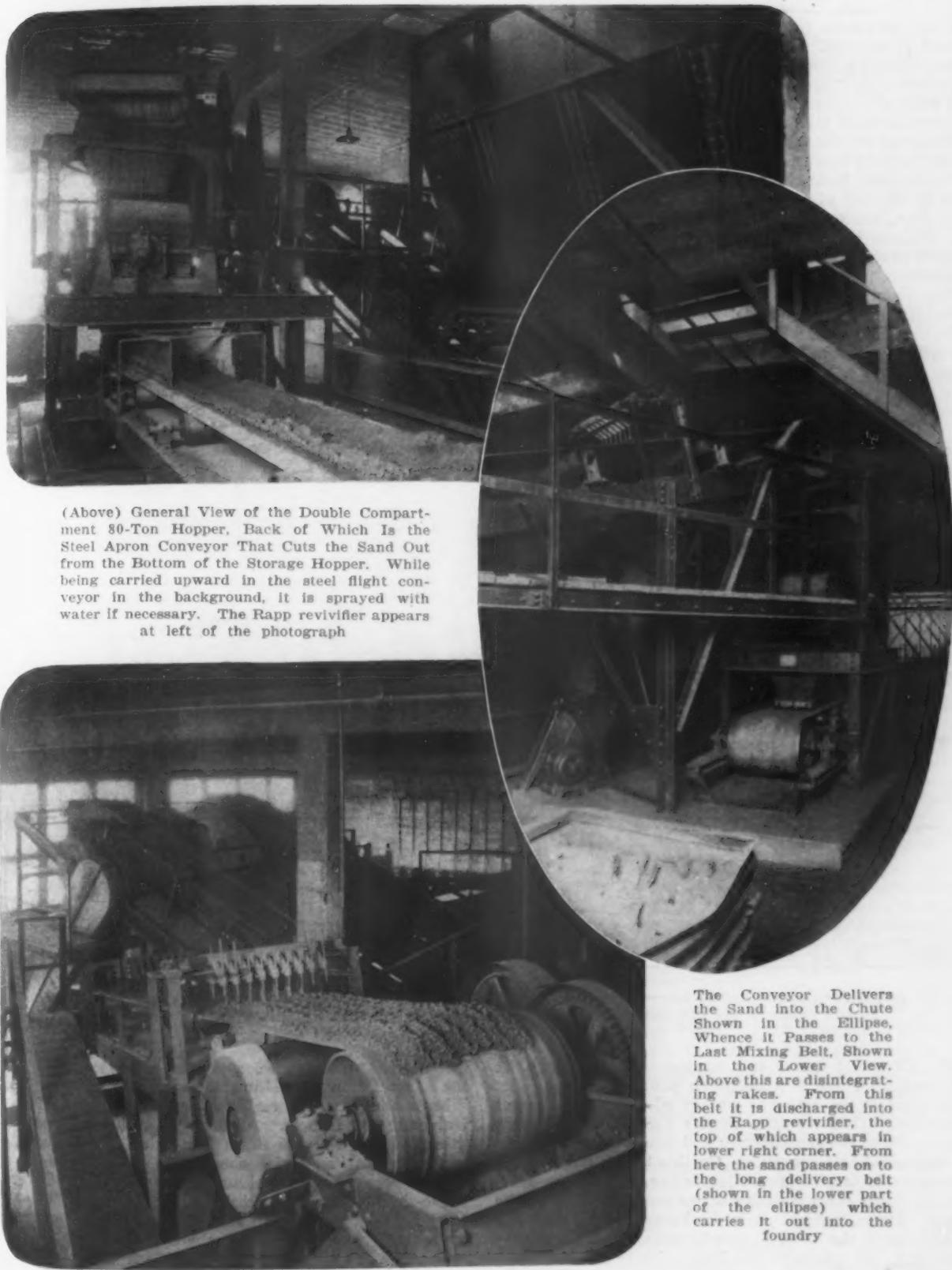
Molding units for the Paige and Hupmobile cylinder castings are similar in general arrangement to that used for the Chevrolet cylinder. It is planned eventually to place these on a daily schedule of 250 Paige cylinders, weighing 230 lb. each, and 250 to 300 Hupmobile cylinders, weighing 210 lb. each.

These production figures are not in excess of the average daily schedule which can be practically maintained, for on the Hupmobile line-up 300 cylinder castings were actually produced on March 24, the highest speed during that day being the making and closing of 42 molds during the seventh hour. The total length of time required for the 300 castings was 11½ hr., with two idle periods, one of 30 min. for luncheon and one of 15 min. for oiling, a net producing time of 10½ hr., giving an average hourly production of approximately 28½ cylinder castings.

The two units are side by side and entirely independent, except that they are served with sand from

Progressive Coring
on a Hupmobile
Cylinder Mold on
the Mold Conveyor.
The lower mold is
shown with the fix-
ture in place and
the mold ready for
placing the cope





(Above) General View of the Double Compartment 80-Ton Hopper, Back of Which Is the Steel Apron Conveyor That Cuts the Sand Out from the Bottom of the Storage Hopper. While being carried upward in the steel flight conveyor in the background, it is sprayed with water if necessary. The Rapp revivifier appears at left of the photograph

The Conveyor Delivers the Sand into the Chute Shown in the Ellipse, Whence It Passes to the Last Mixing Belt, Shown in the Lower View. Above this are disintegrating rakes. From this belt it is discharged into the Rapp revivifier, the top of which appears in lower right corner. From here the sand passes on to the long delivery belt (shown in the lower part of the ellipse) which carries it out into the foundry

the same sand-handling installation. Each unit occupies a floor space approximately 30 x 155 ft. The Paige outfit has a power mold conveyor and roller return conveyor for empty flasks; on the Hupmobile installation both conveyors are of the roller type. The mold and empty flask conveyors are in parallel line, the latter curving around at the molding end of the outfit and joining the end of the mold conveyor. The molding and core machines are located between the conveyors. The core making methods are similar to those used for the Chevrolet, and it is the intention eventually to make both halves of the crankcase and barrel core of green sand.

Molding machines of a larger type designed by Mr. Stoney are used for both units. On these machines, which are of the jar, ram, strip type, the cope and

drag are jarred and squeezed independently, but both are stripped from the patterns simultaneously. As the strip mechanism is carried from a central pillar, the load is evenly balanced so that wear is minimized and as there is little danger that the machine will go out of alignment in use, a perfect draw is indefinitely assured. With two crews working together on the same machine and drawing the patterns simultaneously, one acts as a pace setter for the other.

The operation is as follows: The flask is locked to the jar table by air clamps, filled with sand from a hopper and jolted. After the required number of jolts, the jar valve is closed and another valve is opened, which operates the squeeze head. This eliminates hand labor in butting off. It is stated that this is the first machine equipped for squeezing molds of this size.

When the proper pressure has been applied the squeeze head is released and returned to its original position above the machine, where it is automatically locked in place so that it cannot be released in case the air supply is shut off. After squeezing, the mold is struck off in order to have an even bearing on the bottom plate. Vibrators are then started to free the pattern from the sand, and by means of another valve the cope and drag are stripped from the pattern together and are picked up by the bail of a pneumatic hoist, operating from an overhead monorail system.

Bottom boards used for the Hupmobile and Paige molds are of reinforced pressed steel of box girder construction, providing a smooth bottom surface that permits them to slip easily along on the rollers. The Hupmobile bottom boards, 30 x 38 in., made by the Truscon Steel Co., weigh 114 lb. each, as compared with a weight of about 250 lb. in a cast iron bottom board of the same size.

Sand-Handling System

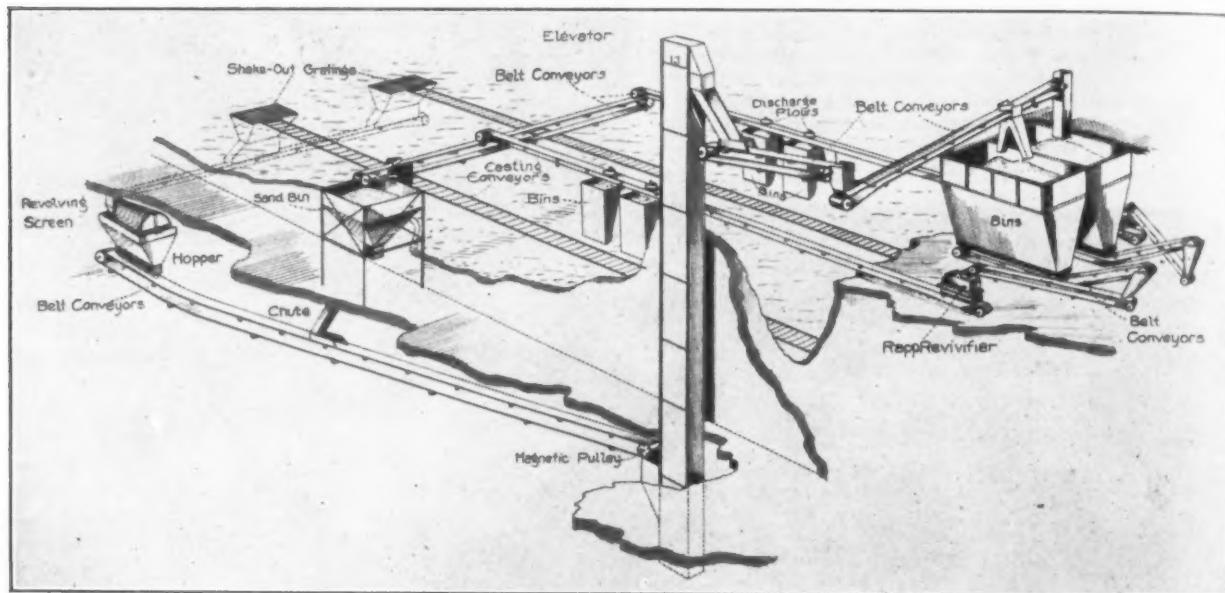
Sand from the knock-out grating falls through a hopper to a belt conveyor, which discharges it into a horizontal revolving screen, to remove all foreign mat-

added advantage in cooling and mixing. Surplus sand is shunted to a cross belt and through a chute to the main belt in the basement and returned direct to the large storage bins. To replace sand and keep it in proper condition, new sand is introduced into the system at the shake-out grate as needed.

This sand-handling installation, new in type, was designed by A. G. J. Rapp, engineer Link-Belt Co., Chicago, and installed under his personal direction. Foundrymen visiting Cleveland for the American Foundrymen's Association convention in May will be invited to inspect these installations.

Properties of Chilled Car Wheels

Bulletin No. 135, University of Illinois Experiment Station, entitled "An Investigation of the Properties of Chilled Iron Car Wheels, Part III. Strains Due to Brake Application. Coefficient Friction and Brake-Shoe Wear," by J. M. Snodgrass and F. H. Guldner, is the third and final report of the investigation of the properties of chilled iron car wheels, which



Sketch of the Sand Handling and Distributing System, Showing How the Various Belt Conveyors Carry it from Storage Bins to Points of Use and then Carry the Used Sand Back to the Bins for Mixing and Re-conditioning

ter. Thence it passes to a cooling belt 80 ft. long, at the end of which is a magnetic pulley. At this point the sand drops into the pocket of a vertical bucket elevator. This elevator carries the sand to a pent house above the second story and into a hopper feeding a horizontal belt conveyor. On this belt a spray introduces water to give proper tempering, it being the practice to keep approximately 6 per cent of water in the sand. From this belt it is discharged to a cross belt which feeds the sand to two hoppers, each of 40 tons capacity. At this point the duplication in sand-handling equipment begins.

As the first water spray is rather light, so that the sand will not become damp enough to pack in the hoppers, a second spray is given after it leaves the storage bins. From each hopper it passes to a steel bucket conveyor at an angle of 15 deg. and discharges through a small hopper onto another belt conveyor, which in turn carries it at an angle of 10 deg. and discharges into a Rapp revivifier which conditions the sand. Then the sand is carried onto a horizontal flat belt conveyor and fed by means of plows into the hoppers (capacity approximately one ton each) over the molding machines. The motors that operate the conveyors have push button control and the plows are adjusted manually so that the sand is fed into the hoppers above the machines at approximately the rate of consumption.

In every case where the sand is discharged from one belt to another there is a drop of from 2 to 3 ft., an

was carried on under a cooperative agreement between the Association of Manufacturers of Chilled Car Wheels and the engineering experiment station of the University of Illinois. As may be gathered from its title, Bulletin No. 135 deals first with strains due to brake application, and second, with the coefficient of friction between the wheel and the brake-shoe, and with brake-shoe wear. Six chilled iron wheels and one forged steel wheel were used in the tests to determine the strains produced through the application of brakes under the nominal conditions of speed, brake-shoe pressure, and length of run. In these tests data were secured for the determination of the coefficient of friction, the tangential pull, the work done by the brake shoe on the wheel, and the weight of metal lost by the shoe. In addition, a series of tests was made to ascertain the coefficients of friction and the brake-shoe losses for a chilled iron and a steel wheel under similar conditions of brake-shoe pressure and speed, the shoe pressure ranging from 500 to 3000 lb. and the speed from 5 to 50 miles per hr.

The Appendix describes the determination of linear thermal expansion, for which a formula has been worked out, and the method of determining the temperatures in a rotating car wheel, and contains 32 full-page figures, giving the results of the brake-application tests. Copies of Bulletin No. 135 may be obtained without charge by addressing the Engineering Experiment Station, Urbana, Ill.

French Trade in American Machine Tools

German Machines Largely Bought Until the Ruhr Occupation —American Tools Remaining from War Time and Their Effect on the New Demand

BY CAPT. GODFREY L. CARDEN

PARIS, March 12.—The machine tool situation in Europe has been unsatisfactory for American exports for the past two years. This has been especially true with reference to France, where American machines of the best designs and construction have commanded heretofore a good market. The report has had currency in the United States that approximately 12,000 new machine tools of American make are still on the market in France and that these tools represent for the most part over-purchases during the war. To many American makers the fact has been brought home that for a couple of years there has been practically no European business, and it is but natural for the American machine tool trade to be in doubt as to what the future holds in store.

I was aware of the above general situation when I arrived on the Continent in the middle of January, and in the interim I have been at pains to ascertain just what are the conditions obtaining in western Europe. In line with the practice I followed in pre-war days, when reporting on the European machine tool trade for the Department of Commerce at Washington, I have directed my inquiries largely to the users of American machines rather than to those who handle them for sale.

German Machine Tools in France

Taking up the French market, I find that industrial works here up to the time that the French made their advance into the Ruhr, were receiving German machine tools in considerable quantities. The Germans now refuse to sell to the French and insist that so long as the Ruhr occupancy continues they will continue to ignore French orders. Just what effect this will have on the French market it is still too early to report. It is noteworthy, however, that for the year ending Dec. 31, 1922, the Germans exported 125,963 metal-working machines of a total weight of 59,725 tons. Of this quantity 79,795 machines were sent to France.

As to the alleged 12,000 American machines still available in France for that market, I hear but one comment, namely, that they represent for the most part machines little known, or not coming under the head of the highest type of American make. If there has been difficulty in disposing of these surplus machines, so also have the French tool works had difficulty in marketing the native product, the German machines having had it practically their own way in France until now. The low German prices have largely accounted for this. When it is considered that Krupp, employ-

ing 100,000 men in all works, reported for the year 1922 a net profit of only \$20,000, some idea can be had of the extremes to which the Germans have gone to lay hold on the export business.

The higher grade American machines have always been regarded in France as in a class by themselves, and not subject to comparison with German prices. But this does not hold good as between the secondary American tools, constituting the bulk of the available equipment now in France, and the best grade of German machines.

Swiss Shops Buying

In this connection the manager of the Allied Machinery Co. of France, which company handles high-grade American machines, reports inquiries as brisk. This may be a precursor of the turn given by the Ruhr occupancy, yet I was given to understand that substantial sales had been made for some time in Swiss territory, through the Paris office of the Allied Machinery Co., and this cannot be ascribed to the political situation. If anything, the Germans would be more capable of giving attention to the Swiss market, now that they are refusing French business. The more satisfactory monetary situation in Switzerland is probably one explanation, coupled with the fact that the high character of many of the Swiss shops makes them steady buyers of the best designs in American machines.

Exchange Difficulties in France

It is a fact, however, that high-grade American machines are wanted right now in France, and from what I can gather the actual demand is lacking only because of the unsatisfactory exchange rate. The tendency seems to be to wait a bit in the hope that exchange will improve.

Were it not for the exchange rate, which at this writing is more than 16 francs to the dollar, I am assured that there would be immediate purchases of American automatic screw machines, universal millers, universal and surface grinders and forging equipment.

With exchange at par, the majority of French dealers would find themselves in position to sell American drills, engine lathes, shapers and planers.

French and American Prices Compared

Today a good make of French lathe sells for 8500 fr. A mediocre type American 16-in. lathe sells, on a 10 fr. to the dollar basis, for 11,000 fr., and a good make American lathe, same size, for 16,000 fr. At the 14

fr. rate the prices for these American lathes would be, respectively, 13,000 and 19,000 fr.

A good make French shaper, 16-in size, costs today 6500 fr., and a 20-in. size, 7500 fr. The cost for mediocre American shapers, at 10 fr. to the dollar, would be for sizes 16, 20 and 24 in., respectively, 9300, 11,000 and 13,000 fr. At the 14 fr. rate these prices would change to 11,300, 14,000 and 16,000, respectively.

A good make of French planer, size 32 in. x 7 ft., costs today 18,400 fr. The same size American planer of leading make would cost on a 10 fr. basis 42,000 fr.

A well-constructed French planer, 40 in. x 10 ft. costs 28,000 fr. For the same size American planer of first-class construction the French industry must pay, on the 10 fr. basis, more than 60,000 fr.

In general the cost of American machine tools to the European buyer is at least 1.5 the pre-war prices, and this combined with the exchange, when no more than 3 to 1, makes the final cost about 4½ against 1. In comparison, prices of the French product stand in the ratio of anywhere from 2 to 3 to the pre-war prices.

Hand to Mouth Buying

Because of the above conditions, many machine tool dealers have allowed their stocks to run out and are today veritably living from hand to mouth, purchasing machines singly, trading on second-hand goods, or on goods coming out of liquidating sales or thrown back by insolvent customers. Those French dealers in American machine tools who have maintained a certain turnover have done so because they had good-sized war stocks on hand, or stocks purchased during the 1918 boom, and they have been under the necessity of getting rid of these stocks to avoid deterioration, and for fear of holding on to devices that might prove obsolete. High-grade American machines were sold at about 60 per cent of their real value.

Several attempts have been made, I learn, to replenish stocks on the basis of 12 fr. to the dollar, but these efforts have generally failed, apart from cases having to do with very special machines. The French dealers declare that purchasing goods at 14 and 15 fr. and even 13 fr. to the dollar is out of the question, and that no experienced dealer would take a chance in stocking up again after the three-year crisis beginning in 1920. It should also be known that the arrangement for "prestations in nature," coming under the head of reparation of the devastated districts, calls for only French, German or other European products, removing any possibility of selling through such channels any machines from America or England, or any other country with a high exchange rate.

Operations of French Tool Builders

One of the best known French machine tool works is that of Bariquand & Marre. I reported on this plant in 1908 for the Department of Commerce. At that time Bariquand & Marre had a force of about 700. I visited these works today and found that they were employing about the same number of people. The old works had been increased by the addition of a new machine tool hall and new offices. The output of this plant comprises a full line of small vertical drills and millers, horizontal milling machines, combined horizontal and vertical milling machines, small bench lathes, engine lathes of small and middle sizes, chucks, turret lathes, slotting machines, grinders, rod straightening machines, oil extracting machines and a full line of gages. Gear cutters, drills, reamers, taps and dies are made also. A firm like Bariquand & Marre may be expected to cater directly to the numerous small shops where only light work is handled, but at the same time this firm is turning out lathes and milling machines capable of handling the ordinary work re-

quired of middle-sized tools. The small vertical millers are popular tools among the French works, and it would seem that this firm has specialized more on this form of tool than most European makers.

New Outlet Needed for French Tools

The viewpoint of Bariquand & Marre as to the French machine tool market is fairly representative. It senses the general view of French builders in contradistinction to French dealers. The firm believes that some new industry must arise in order to keep the French machine tool shops going. The bicycle works, the automobile and aviation shops just before the war drew heavily on French makers. These were all new industries. From the first months of the war the want of machine tools was felt on all sides, and made imperative the fabrication of the greatest possible number. Practically all French machine tool works expanded to the extreme limit of which they were capable, but this not proving sufficient, many machinery works not previously engaged in the making of machine tools added them to their other work. For a time after the war these works continued to make machine tools, but finally they have dropped out one by one, in view of the enormous flow of machines coming out of the general liquidation.

Just now, say Bariquand & Marre, the market is full of the ordinary run of machines, and it is difficult to sell any but special machines. The French industrialist believes in holding on to his machines, getting all possible work out of them before considering replacement.

American Tools Will Not Compete on Price

While the general machine tool situation in France is undoubtedly quiet, it is asking too much to expect American machine tools to compete with French tools in price, even when making allowance for the customs. American machine tools have always commanded higher prices in France when they possessed superior merit, and in pre-war days the question of quick delivery in the case of those tools too large for stock was always an important factor. The Germans during the year 1922 made large deliveries to France, Belgium and Italy. This shows that the French market will respond if the prices are advantageous. With the Ruhr occupancy blocking the flow of cheap German tools to France, there is a better immediate prospect for the French machine tool works, but this can only be temporary, for at best French industries must look for a strengthening of the franc before there can be prosperity, and this in turn is dependent on a settlement of French-German relations.

American Plants in France?

There is heard talk of American plants duplicating their works and manufacturing in France. In conservative quarters the opinion is expressed that any attempt to do this on the usual American large scale, and with an American staff, would be courting failure. Each case, it is declared, should be carefully considered on its own merits, and it may be found better in the majority of instances to make arrangements with a French licensee to build along American lines, but under his own responsibility, and on a reasonable scale.

Summed up, the situation in France is one requiring careful watching. Some of the best dealers in this territory are deserving of every encouragement. The high-grade American machine is wanted in French shops as much today as in pre-war days; but I do not believe now, any more than I ever did, that American machine tools of the best makes should attempt to compete in price. The French in my judgment will buy just as soon as they feel a bit stronger in purse.

CENTRIFUGAL STEEL PIPE

License Granted to One Company to Make Not Over 100,000 Tons Per Year

Negotiations have been completed for granting a license to make, by hot-mold centrifugal casting, steel pipe in standard lengths and sizes under the Leon Cammen patents. The licensee is a mid-Western steel company not making pipe today. A maximum of 100,000 tons of pipe per year is involved.

One feature of the license contract is: "The licensor does hereby give and grant unto the licensee the right to make, use and sell not more than 100,000 tons of 2240 lb. each per calendar year, and further agrees that he will not issue in the United States licenses, except as stated hereinafter, to make a total of more than 3,500,000 tons of pipe per calendar year, except that any licensee, and specifically also the company, who has made in any one year not less than 90 per cent of the maximum quota open to it under the present agreement, shall have thereafter the right to make in any calendar year 10 per cent more than said maximum quota, subject to conditions stated hereafter."

Measures to Protect Development Expenses

There were two reasons why this provision was made. Casting steel pipe by the hot-mold process requires a comparatively inexpensive outfit, Mr. Cammen, emphasizes, and lends itself easily for use as a "filler-in," to keep the plant and furnaces busy in slack times. If licenses were issued indiscriminately, concerns devoting their whole force to pipe making would be encountering a rather unfair competition on the part of those who make pipe only as a "filler-in," or only

when the market price of pipe is out of line with other steel products. There would be therefore always an unsettling element in the steel pipe market, tending to introduce a speculative spirit, and doing no good to either producer or consumer.

The second reason for the above provision was, frankly, to keep out of this particular business the mills who make it a practice to let the other fellows experiment, and who come in after all the production troubles have been overcome, and the market has been educated to demand the new article, and who then expect to take the lion's share of the business.

Mr. Cammen says that his counsel has indicated that the above provisions are not in restraint of trade within the meaning of the law. In the first place, no attempt is made to keep out any reputable steel company willing to comply with the conditions of the contract, and applying for a share in the business before the entire volume thereof has been taken up. In the next place, the owner of the patents has an undoubted right to license as many or as few concerns as he may desire. Finally, the maximum volume of production stipulated is roughly equal to the present capacity of the welded steel pipe mills in the United States, so that, should even every ton of welded pipe be displaced by centrifugally cast steel pipe, there would be no pipe shortage in the country, especially in view of the provision permitting each licensee, under certain reasonable conditions, to increase his quota ten per cent per year."

The engineers of the present licensee company, the name of which is not divulged, have reported that in order to obtain the full production of 100,000 tons of pipe per year, 6 in. to 14. in sizes, including heavy and double-extra heavy gages, additional equipment will be required, at an estimated cost of \$350,000.

BUYS TONAWANDA STACKS

American Radiator Co. Acquires Two Furnaces of Donner Steel Co.

BUFFALO, April 3.—The American Radiator Co. has purchased the two Tonawanda furnaces of the Donner Steel Co. Negotiations, which were reported as pending in THE IRON AGE last week, have been closed and formal transfer of the property has been made. The furnaces, which have a capacity of 600 tons per day, will be operated by the Tonawanda Iron Co., Buffalo, a newly incorporated subsidiary of the radiator corporation.

Archer A. Landon, vice-president in charge of Buffalo operations of the American Radiator Co., issued the following formal statement in connection with the announcement of the purchase:

"The American Radiator Co. has acquired the properties of the Tonawanda Iron and Steel Co., which will supply the radiator company with a portion of its pig iron requirements. The company already has an organization at the furnace to put it in blast at the earliest possible moment. Ore and coke supplies have been purchased and a force of men to operate the plant is being employed. It is the hope of the company that it may become an important part of Tonawanda's industrial life."

H. A. Brassert has been retained in a consulting capacity for the remodeling of the plant and putting it in operation. Robert McKurkin has been engaged as furnace superintendent. Mr. McKurkin was formerly with the United States Steel Corporation and served in several plants of its subsidiaries.

Officers of the subsidiary corporation are: President, B. M. Woolley; vice-president, Archer A. Landon; secretary and treasurer, Wetmore Hodges. The officers and the following will make up the board of directors: G. H. Hodges, Clarence Carpenter, Charles M. Parker and George Pick.

The furnaces have not been in blast since the close of the war. Extensive repairs will be made, but the radiator company plans to put the stacks in operation at once and make repairs when convenient.

BRITISH FOREIGN TRADE

Steel Exports in February Continue Heavy, With Imports Also in Large Volume

British steel exports in February of 324,460 gross tons, including scrap, continue to maintain the fairly heavy volume which began in October. They compare with 370,028 tons in January, a longer month, and with an average of 364,107 tons per month for the last quarter of 1922. Imports in February were 130,008 tons, or only about 3000 tons less than those in January of 133,182 tons, also including scrap. Comparative data are as follows:

British Steel Exports and Imports, Gross Tons

	Exports	Imports
January, 1923.....	370,028	133,182
February	324,460	130,008
Aver. per month, 1922.....	295,980	82,215
Aver. per month, 1921.....	144,885	152,734
Aver. per month, 1920.....	274,881	128,685
Aver. per month, 1919.....	188,519	50,801
Aver. per month, 1913.....	420,757	195,264

More detailed data of the exports are as follows:

Principal British Exports, Gross Tons per Month

	1913	1922	February	1923
Pig iron }	93,700	66,159	{ 25,382	65,381
Ferroalloys }			7,890	14,098
Steel rails	42,200	21,300	18,178	18,518
Steel plates	11,200	6,700	6,624	7,638
Galvanized sheets ...	63,500	43,600	37,795	49,543
Steel bars, rods, etc..	20,900	19,100	10,655	22,243
Tin plates	41,300	37,400	34,502	46,690
Black plates and sheets	11,700	18,700	14,707	22,056

Data as to importations of importance are as follows in tons per month:

	1913	1922	Feb., 1923
Iron ore	620,000	289,400	409,621
Manganese ore	50,100	28,109	21,261
Pig iron and ferroalloys...	18,000	12,800	15,711

Exports of scrap iron and steel in February were 6,892 tons as compared with 12,880 tons per month in 1922. In 1913 they were 9600 tons per month.

WAGE TREND UPWARD

So Says Secretary Davis in a Statement on Business Conditions

WASHINGTON, April 3.—Pointing out that one year ago the unfilled requirements in the steel industry were less than 4,000,000 tons, while today they total nearly 8,000,000 tons, and that the former is the basis of dull business and the latter means "full steam ahead," Secretary of Labor Davis brought out this fact in a general statement yesterday to show the contrast in industry on April 1 of last year and the same date of the present year. The copper industry on April 1, he said, was almost down and out, as most of the mines, mills and smelters were idle due to unsold stocks and the poor market. Today, it was declared, stocks have been depleted and production is fast approaching the best records of the war period.

He also pointed out that one year ago the country was emerging from business depression so generally felt in 1921, and was confronted with a general strike that tied up over two-thirds of the production of bituminous mines and practically all of the anthracite operations. At present, he said, instead of 600,000 miners on strike, they are all at work and "will remain at work as actively as railroad transportation and market requirements warrant for one year from date so far as the bituminous mines are concerned."

AWAITING THE PRESIDENT

Policy as to Tariff Investigation Will Be Guided by the White House

WASHINGTON, April 3.—With the determination of the policy of the United States Tariff Commission awaiting the return of President Harding from Florida, plans have been developed to conduct them under either the limits of the flexible provisions or under the broad powers conferred upon the commission under section 318. Majority sentiment in the commission as expressed by Chairman Thomas O. Marvin is in favor of instituting general investigations under the various schedules, but with the strict understanding that none of them would call for a recommendation in changes in rates except in the case of investigations instituted upon applications granted under the flexible provisions.

It is understood to be the purpose of Mr. Marvin to confer with President Harding soon after the return of the Chief Executive and after getting definite instructions to proceed with the tariff inquiries. The general belief is that the President is in accord with the view advanced by Mr. Marvin, that the investigations should be of a broad character. The advantages of such a plan are held to be twofold. First, it has been pointed out, the commission would be equipped with data which would be at the disposal of Congress or the President at any time that they may be desired. Secondly, it is maintained that since the investigations under the flexible provisions cover certain items in all of the important schedules, it would be practically as simple, would cost but little more and would save duplication of effort, if the scope of the studies were widened so as to comprehend all of the major products embraced within the schedules. Manifestly, the metal schedule is one of the most important in the tariff. It is felt that inasmuch as investigation of differences in costs of production of pig iron in the United States and in the chief competing countries has been ordered under the flexible provisions, the inquiry should be enlarged so that the studies would include all of the processes and all of the important commodities ranging from ores to finished products. The staff of the Metal Division is prepared upon short notice to undertake the investigation both in the United States and abroad, although if it takes on a wide range it is likely that one or two more men will be added to the names already determined upon which were announced in THE IRON AGE of last week.

The operation of the flexible provisions is being

"The outlook seems to justify optimism so far as the immediate future is concerned," said Mr. Davis. "If we exercise ordinary caution, and do not become so over-enthusiastic with the turning of the tide that we lose rational control, there seems to be no reason why we should not now enjoy a continuing period of substantial prosperity, that will put behind us the whole era of depression which followed the war."

"Work, gainful work, is the salvation of any nation. We have the work and the opportunity."

Declaring that the trend of wage scales is upward, Mr. Davis said that during the past four months wage increases have been reported in practically all of the forty-three industries covered by the Bureau of Labor Statistics.

"These increases have been general," he said, "especially in the iron and steel industry, foundries and machine shops, sawmills, furniture, leather, and paper and pulp establishments. The iron and steel plants inaugurated a 10 per cent increase in September. This was not met at the time by all establishments, but since then it has been met by practically all of them. Ten plants granted the 10 per cent increase to all of their employees during February. Twenty increases in wages in iron and steel establishments were reported to the bureau during that month, thirteen of these increases applying to 100 per cent of the employees. In foundries and machine shops the increases have ranged from 2 to 20 per cent, twenty-eight plants reporting increases during February."

watched with exceptional interest. This is natural in view of the fact that they constitute a wide departure in the method of tariff making in the United States. Members of the commission are of the opinion that if this new legislation is sustained by the courts as a proper exercise of legislative authority, there may be expected in time the further use of a non-partisan and judicial commission, such as the Tariff Commission is intended to be, as an instrumentality through which all political parties of whatever economic views, when in control of the Government, may have their tariff policies, when legislatively declared, administratively interpreted and applied. Such an opinion was expressed by Commissioner Edward P. Costigan.

Mr. Costigan is thoroughly aware of the difficulties that will be encountered in applying the cost of production principle. He said that it should not be inferred that the direction given by Congress to the President, with the aid of the Tariff Commission, to ascertain differences in costs of production in this country and in competing foreign countries, will prove easy to fulfill. He said that the reverse is true. Mr. Costigan explained that "there are many thinkers who view the undertaking with profound skepticism, which is intensified by their belief that costs of production do not furnish a practicable basis for tariff making." He pointed out that in determining tariff policies the public naturally desires expert advice on the subject, whether in particular cases it is in the national interest to stimulate and maintain through tariffs high-cost domestic industries in the face of low-cost foreign production.

The National Tube Co. is preparing to make a big fill and build a slag wall in its property in Dravosburg, near McKeesport, Pa. This has led to a report that the company was preparing to begin work on a by-product coke plant in the near future. Such construction has been contemplated for several years but it is officially stated actual building still is some time distant. For the present the fill is merely a slag disposal project.

Some 200 employees of the General Fire Extinguisher Co., Auburn, R. I., plant last week went on strike pending an adjustment of wages. The workers were unorganized. Previously the company announced an adjustment of hourly and piece-work wages would be adjusted as soon as clerical departments can arrange the matter.

Impressions of Middletown

An Ohio City Which Has Recorded Great Achievements,
Employers, Employees and All Sorts of Folks
Working Together—Meeting of Business
Paper Editors

THE National Conference of Business Paper Editors recently decided that it would do something different; that is, instead of meeting in New York or Chicago, as had long been the custom, it would accept the invitation of the wide-awake people of Middletown, Ohio, and hold a meeting in that city. It was perhaps somewhat daring to try to assemble the editors at a city hundreds of miles distant from the place of publication of any of the trade papers represented in the conference and no one imagines that the conference will often desert the great publishing centers when holding meetings, but everyone who went to Middletown was glad that it was decided to do something different, and all felt that the time was pleasantly and profitably spent.

Middletown has only about 23,000 inhabitants, but few cities have so much civic force per man or such perfect harmony of the various elements which make up a city. One evidence of ability to do things was the raising of \$1,000,000 last year for civic purposes. This was accomplished by people of all nationalities, creeds and business interests working together for the common good. One of the results of that remarkably successful campaign was a splendid Y. M. C. A. building, of which Jew and Gentile, Catholic and Protestant are proud, a large addition to the general hospital and numerous other achievements. The success of this civic effort was due largely to the ability of manufacturers to work together and to help, not only by making large donations, but by setting the example of disregarding all differences of opinion and also business competition. The two most important industries of Middletown are the American Rolling Mill Co. and the various companies which manufacture different kinds of paper. These companies and others united in making an exhibit of their products in the basement of the new Hotel Manchester, which was erected as a result of community cooperation, although not in any way connected with the campaign for the \$1,000,000 civic fund.

Many Papers Presented

Monday and Tuesday of last week were devoted to the meeting of the Editorial Conference, the mornings being set apart for the reading of papers and discussions, and the afternoons for visiting plants. The

formal papers which were presented were by citizens of Middletown and they were 40 in number, but it was of course impossible to read all of them, and they were printed and bound in neat pamphlet form for the perusal of the editors and others interested. The papers include the following by officials and others connected with the American Rolling Mill Co.: "The Place of Management in Industry," by George M. Verity, president; "Economics for Employees," by A. J. Beatty, director of training; "Employment Management, a New Opportunity for Service," by S. R. Rectanus, formerly director of the personal service division and now assistant manager of the Ashland, Ky., division; "Research, a Requisite to Industry," by W. J. Beck, director of research; "Why Our Letters Produce More Profits," by Sherman Perry, correspondence adviser; "The Human Side of Production Management," by C. R. Hook, vice-president and general manager; "Raw Product Advertising as Developed and Practiced by Armco," by Bennett Chapple, director of publicity; "Meeting the Race Problem in Industry," by A. K. Lewis, director personal service division.

Unfortunately President Verity was unable to be present, owing to the serious illness of Mrs. Verity, at whose bedside he is in California, but he sent a hearty letter of greeting, and at the opening session Bennett Chapple, director of publicity, welcomed the visitors, as did also President Powell of the Chamber of Commerce, at the banquet.

Mr. Rectanus speaks from experience, not only as a director of personal service, but as one who has come up from the ranks of the workers, and his address was received with enthusiasm. Mr. Perry's practical suggestions as to letterwriting aroused much interest and he was plied with questions. The Armco pamphlet, "The Mechanics of Correspondence," was received with special favor.

Vice-President Hook is an intensely earnest man and deeply impressed his hearers as he explained how the company takes the mystery out of business by taking its employees into its confidence. Mr. Hook explained with the aid of charts how the finances of the company are pictured to the employees. The men are told everything they want to know. For example, the employee is likely to think that a surplus is cold cash stored away in a bank. Meetings of the advisory

Notable Results of Working with Employees

The manufacturers of iron and steel and paper products in Middletown believe in working with their men to the greatest extent possible, not only in telling the employees all about financial conditions, but in adjusting wages and all other conditions of employment. The outstanding achievement has been the establishment of the 8-hr. day in the plants of the American Rolling Mill Co., but many other examples of highly satisfactory results of cooperation could be cited.

Mr. Hook, in his address to the editors, said that although work in the hot mills of the sheet mill department requires not only a large degree of skill, but also ability to stand very hard physical work in extremely hot weather, the company feels pride in the fact that it has never been compelled to shut down a mill for a moment on account of not having men to operate it. The sheet mill organization in 1908 was small, but was made up of a fine lot of loyal workers and the four hot mills made a record of never shutting down, which has been maintained to this day, when there are 27 hot mills. Throughout the strike period of 1919, when nearly all steel mills were closed and during the heat of last summer when new crews were being trained, the test was a severe one, but the fine record was not broken. At times it seemed as though physical endurance would not stand the test, but whenever an exhausted worker was compelled to give up or it was evident that he was tiring rapidly, there was another "buddy" to give him a "spell" until he could catch his wind or another man could be sent for.

This spirit of helpfulness has worked wonders.

board and of larger bodies of employees including sometimes several hundred are held, and they are told exactly what the surplus is, how it was formed and why all the earnings of the company are not paid out in dividends. Employees are encouraged to ask questions, and everything about bookkeeping is made clear to them. In order to bring about contact with those who manage and those who do not have management functions, the company some years ago adopted what it calls its advisory committee plan. Once a year elections are held in the several departments and at that time department advisory committees are elected by secret ballot from the organization. At the present time, there are about 30 committees and a total membership of 137. Each department committee has a chairman. Every employee who has been in the continuous service of the company for one year is entitled to a vote and is eligible for election.

The Hours of Labor

One of the achievements of the company working with the advisory committee is the operation of the plants at Middletown under the 8-hr. system. This has been accomplished because the men were willing to do more work, and the increased cost has been very slight. Of course no man is doing 50 per cent more work than he did under the 12-hr. system, but by working a little harder for eight hours and dispensing with helpers here and there, an absolutely satisfactory plan has been put into operation.

In the paper mills of Middletown, the 12-hr. system is still in effect, but this is because the men voted for it, having been given a chance to say what they wanted to do. The jobs in the paper mill are not so hard that in the opinion of the men, the 12-hr. work day is too long. Many of them are able to obtain hours of sleep while on duty, just as men often sleep in the steel and

blast furnace plants, but the paper mill employees get their rest under more favorable conditions. The favorite plan of wage payment in the paper mills is one based on a sliding scale of wages: as the net earnings go up, wages are advanced, and as earnings decline, no trouble is experienced in getting the men to accept reductions. The men are told fully about the finances of the companies.

At the banquet tendered Monday evening by the Chamber of Commerce of Middletown to the visiting editors, F. M. Feiker, assistant to President McGraw of the McGraw-Hill Co., but serving temporarily at Washington as assistant to Secretary of Commerce Herbert Hoover, spoke as the representative of the member of the National Conference, while several of the citizens of Middletown gave fascinating outlines of civic activities.

Effects of Prohibition

Manufacturers of Middletown are thoroughly convinced that prohibition has come to stay. A few years ago, Butler county, in which the city is located, went wet by 50,000 majority. Under the leadership of manufacturers, this vote was changed at the last election to nearly 60,000 for the enforcement of prohibition. One of the leading paper manufacturers said: "We haven't any fears about prohibition. We would welcome a vote at any time, but nobody here has advocated another referendum. When the manufacturers and other business men, the women and the unions are united for prohibition, there is no possible chance to defeat it. The evidence of the good that it has accomplished can be found everywhere. Workingmen who spent virtually all their earnings in the saloons are now happy, thrifty citizens, and not a few of them are riding about in automobiles, all infinitely better off than they were in the days of the saloon. They are happy and everybody is satisfied."

Program of National Metal Trades Meeting

The program of the twenty-fifth annual convention of the National Metal Trades Association, to be held at Hotel Astor, New York, April 18 and 19, has been announced as follows:

Shall We Close Our Gates to the Immigrant?—M. W. Alexander, managing director National Industrial Conference Board.

The Old Government and the New Industry—Hon. W. L. Huggins, for three years presiding justice Kansas Industrial Court.

Business Men and Politics—Senator Arthur R. Baxter.

The Law of Supply and Demand—Dr. G. W. Dyer.

What Is the American Railroad Question?—R. S. Binkerd, vice-chairman Committee on Public Relations, Eastern Railroads.

Business and Government—Dr. Holdsworth, vice-president Bank of Pittsburgh in charge of foreign department.

Labor Problems of the Farmer—Sherman J. Lowell, National Master of the National Grange.

Legislative Program of American Federation of Labor—Walter Gordon Merritt, counsel for League of Industrial Rights.

"**Industrial Training**," a text book on training apprentices, prepared by the Committee on Industrial Training, will be distributed at the convention.

French Foundrymen to Participate in American Convention

Announcement is made by the American Foundrymen's Association that at its annual convention in Cleveland, April 30 to May 4, a paper will be supplied by Mr. de Fluery on "Aluminum and Light Alloys" as the representative of the French foundrymen's association, and as the official exchange paper from that organization. Mr. Ramas, president of the French association, is scheduled to sail on the steamship Paris from Havre on April 14, reaching New York April 21.

He will attend the Cleveland convention and will deliver an address on behalf of the French association and the international meeting to be held in Paris in September.

Chicago Safety Conference

A mid-year safety conference will be held at Chicago April 17, under the joint auspices of the National Safety Council, Engineering Section, the Chicago Safety Council, and the Western Society of Engineers. The sessions will be held at the rooms of the Western Society of Engineers, Monadnock Block. The morning meeting will be devoted to the discussion of the topic, "Handling Material," which will cover methods of eliminating manual hazards through the use of mechanical devices. In the afternoon the subject will be "Dust and Fume Hazards." A dinner meeting will be held in the evening at the Morrison Hotel.

At the annual meeting of the Electric Hoist Manufacturers' Association, held at Euclid, Ohio, on March 22, S. H. Libby, consulting engineer of the Bloomfield Works of the General Electric Co., was elected chairman, and H. J. Fuller, sales engineer of the hoist department of Yale & Towne Mfg. Co., was elected vice-chairman. E. Donald Tolles was continued as secretary and treasurer, and Thomas M. Debevoise, as counsel.

The American Management Association, 20 Vesey Street, New York, is organizing a committee to take charge of the activities of what is known as the sales executives' division, which division aims at "the interpretation of sales management problems in terms of the human factor." A subsidiary committee on training for salesmen has already been organized.

Employers and Employees Must Stand Together

*"EMPLOYERS and workers everywhere are learning that they stand no longer in the relation of master and servant as in ages past, but that they are co-workers, partners, whose joint and mutual interests march side by side. They are coming to know that the prosperity of industry depends upon production, and that industrial warfare is the greatest enemy of production. To end industrial warfare we need understanding and cooperation between the men who manage industry and the men upon whose labor industry is founded. The greatest prosperity, for employer and employed, will be found in that industry where the employer knows intimately the problems and needs and aspirations of the workers, and where the workers have a sympathetic understanding of the difficulties and discouragements and purposes of the employer. * * * Employer and employee must stand or fall together."*—Secretary Davis.

Secretary of Labor Davis Deplores Strikes*

Pictures Distress Resulting from Industrial Strife—Declares
Steel Worker Needs No Sympathy—Predicts
Adoption of Eight-Hour Day

BY JAMES J. DAVIS

LET us be slow to use the strike weapon. I am not one of those who believe that you can force industrial peace into being by legal enactment. We hear much talk nowadays of compulsory arbitration of labor disputes in one form or another, but the principle does not appeal to me. I have studied the matter diligently, and the information that comes to me shows that wherever compulsory arbitration has been tried it has proved a failure. Strikes and lock-outs have been with us in the past, are with us today, and will be with us so long as employers seek to impose unbearable conditions upon workers, or workers endeavor to obtain more from industry than they are entitled to. The remedy lies not in governmental interference between the employer and the employee, but in direct negotiation and mutual understanding.

I know the evils and the misery of the strike, out of my own experience as a worker, and through the continuous stream of industrial disputes which flows through my office in the Department of Labor. The tragedy of every strike, it seems to me, is that, ultimately, it is settled by negotiation or compromise. After men have been idle for months, after women and children have been brought down to the last crust of bread, the representatives of both sides get together around the council table and reach a settlement. They go right back to where they were when the months of misery began, and in almost every case both worker

and employer have lost by reason of the conflict. Instead of conference after months of industrial battle, I would have counsel before the strike is called. In my capacity as Secretary of Labor I try to discourage strikes and exert every influence to get management and men who are in disagreement together on some common ground of compromise. I say to you out of a deep experience that it is better to gain half a loaf by compromise than to trust to the vicissitudes of a long drawn out industrial struggle, with its sorrow and its despair. I would save those loyal women who in every worker's home, while the strike is on, spend days and nights in agony, depriving themselves and their little ones of the necessities of life, that the bread-winner may be fed. Let us remember that the process of evolution is always going on, and that eventually the whole loaf will be forthcoming. Seldom, indeed, is the whole loaf won in a strike. It is far better to reach a compromise before a strike is called, and eliminate the cost that must be paid for every suspension of industry. Let us remember that the best way to raise wages is to cut waste and increase production. When the employer advances, you advance. When the company succeeds, you succeed.

Increased Production, Better Work

Increased production, better quality of work mean reduced manufacturing costs, which every wise employer will see to it are reflected in higher wages. Do not wait for times of trouble to get together with your employer. When business is prosperous is the time

*Abstract of speech of the Secretary of Labor before Amalgamated Association of Iron, Steel and Tin Workers of America, Warren, Ohio, April 5.

Evils of the Jurisdictional Dispute

"ONE evil that has crept into our trade union system is the jurisdictional dispute. I honestly believe that the jurisdictional dispute has done more injury to the cause of organized labor in the United States than any other single thing. The spectacle of workers employing the strike weapon against their own fellows is a reflection upon our whole civilization. It is in violation of the whole spirit of trade unionism, and it has done much to discredit the trade union principle in the minds of many employers. The jurisdictional dispute is the specter which has frightened the management of many industries, and which has caused employers to set their faces firmly against organized labor in many plants in the steel industry. The jurisdictional dispute must go, if trade unionism is to fulfill its high purpose in our industrial life."—Secretary Davis.

for workers and management to get together and work out plans for stabilizing conditions in their industry, to devise ways and means of meeting periods of depression which are bound to come. Men and management in industry, working with a clear understanding of each other's problems, and seated around the council table, can solve their own unemployment problems better than any government agency can solve them.

We hear much cant of sympathy for the poor steel worker; the steel worker wants no sympathy. He wants an honest day's pay for an honest day's work. He knows how to take care of himself. He needs no self-appointed guardians to pamper and pet him and tuck him in bed o' nights. He is the rock upon which has been founded the greatest age the world has ever known—the age of steel.

Part of the Steel Worker

The steel worker is part of a great group of men and women upon whose labor much of our national prosperity depends. There are 717,000 men and 12,600 women engaged in the iron and steel industries in the United States. Of these 256,000 men and 2,200 women are at work in blast furnaces and steel rolling mills, and 38,600 men and 100 women are in the nation's iron mines.

The steel worker has played a basic part in the greatest drama in the history of the world, the drama and romance of steel. You will not find in all the libraries of the world a romance so fraught with adventure, with grandeur, with splendor as the romance of steel which you have helped to write into all the world about you. During the lifetime of many of you men, steel has built a new world, has revolutionized the daily life of mankind. The age of iron lasted thousands of years. The steel age transformed the world in a generation.

The White House Conference

Something over a year ago I attended the conference called by President Harding in an effort to put an end to the 12-hr. day and the seven-day week in the steel industry. It is true that but a small percentage of the workers in the steel industry work a 12-hr. day seven days a week. But there ought not to be a single one. I am confident that through the President's efforts the time will soon be at hand when not one worker in a steel mill will be on a 12-hr. shift.

The 12-hr. day and seven-day week in American industry must go. Enlightened employers all over the country are seeing the wisdom of abolishing the long shift. Recently the box-board manufacturers of the country, with an output of \$100,000,000 a year, and with 12,000 or 13,000 employees, took steps to eliminate the 12-hr. day. The industries which seek to perpetuate the long shift will ultimately find that it will cost more to maintain it than to reorganize upon a more humane basis. Society cannot afford to permit any industry to unmake men in order to manufacture any product. Society must depend upon the home life of our people, and a 12-hr. day for the breadwinner automatically puts a limit on family life. Unless the father is permitted to have enough time in his home to associate with his children, to do his part in supervising their training, he is not in a position to do his duty toward the future of America. We cannot look upon the home which the father leaves before the waking hour of his babies, to return after they have been put to bed by the mother of the family, as a model American household.

Trend to the Shorter Day

The trend is away from the 12-hr. day in all American industry. President Harding made it clear that society wins no benefit from thus overworking men. I am sure that the 12-hr. day must go. I am firm in this belief because I am confident that humanity will force us to think more of men and homes than of anything that men must work 12 hours to produce. Out of my experience I know that the seven-day week and the 12-hr. day are not productive of good goods, good men, or good communities. I know that the American people will be more than glad to stand any loss that

may come because of the elimination of the 12-hr. day in the steel industry. They will cheerfully pay the additional amount in their bills for steel. I am confident that we are coming steadily and surely to the six days of work and one of rest prescribed by the law of God, and to that ideal of eight hours for work, eight hours for play and eight hours for sleep which is best for all mankind.

Under such conditions we will encourage and strengthen that individual initiative which is the very life blood of America. It has seemed to me that lately we have paid little attention in this country to the man who leads the way, the man who is the pioneer of civilization, the man who, by his vision and enterprise, opens up new fields of human activity. We have been too prone to criticize him, too apt to overlook his courage, too quick to condemn his failures and to envy his successes.

All Idlers Condemned

From the point of view of the puddler's seat before the furnace it appears to me that the man who forges ahead is the man we ought to support. The man who, by his initiative, by his enterprise, by his courage, steps out to develop new industry, to expand business, to extend the opportunities for employment, is the man we ought to aid. The idea that just because a man happens to have money he ought to be condemned is dangerous. Let us look at what he does with his money, what results he gets for himself and his fellow men. To my mind there is no difference between the idler who sits back and enjoys inherited wealth, and the idler who sits sleepily on a park bench and watches the world go by. Neither is advancing the cause of humanity. Neither is adding to the sum total of human happiness. The man whose wants are small has done little to develop America, to forward civilization. It is the man who wants many things, and who works to get them, that helps himself and his fellows, for every satisfied want means work for some one.

Manganese Deposits of East Tennessee

A report on the deposits of ores of manganese in East Tennessee, by G. W. Stose and F. C. Schrader, has just been published by the Geological Survey as Bulletin 737. This bulletin, which was prepared in cooperation with the Tennessee Geological Survey, is accompanied by a geologic map of East Tennessee, which shows the formations that contain the ore and includes a list of the mines and deposits in this part of the State. Each deposit is described in detail and is accompanied by a sketch map and sections, and some of the more productive mines are illustrated by detailed geologic maps that may be of special service to mine owners or investors. The bulletin shows the relation of the ore to the rock formations, describes the mode of origin of the deposits, and includes pictures of specimens of manganese minerals.

Zinc Production in 1922

Zinc production in the United States in 1922, according to C. F. Siebenthal and A. Stoll of the U. S. Geological Survey, was 352,786 net tons of primary goods. Including the redistilled secondary metal the country's total output was 387,230 tons. This compares with 218,073 tons in 1921, with 484,748 tons in 1920 and 485,491 tons in 1919.

The apparent consumption of primary zinc in 1922 was 371,833 tons against 203,600 tons in 1921 and 323,043 tons and 323,964 tons in 1920 and 1919 respectively.

There were 81,000 retorts in operation at the end of 1922 as compared with only 42,400 at the close of 1921.

At a meeting of the Sydney, N. S., Steel Workers' Union on March 20, a resolution was passed demanding of the British Empire Steel Corporation a 30 per cent increase in wages, the 8-hr. day, recognition of the union and the inauguration of the check off system of collecting union dues. The union demands an answer by April 1, with a strike as an alternative. Out of 3700 men employed at the Sydney steel plant, 150 attended the meeting.

New Method of Sash Weight Manufacture

Output of 3840 a Day and Molding Cost of One Dollar Per Ton Claimed—Machine Molding Used—Process Is Continuous—Wire Eyes a Feature

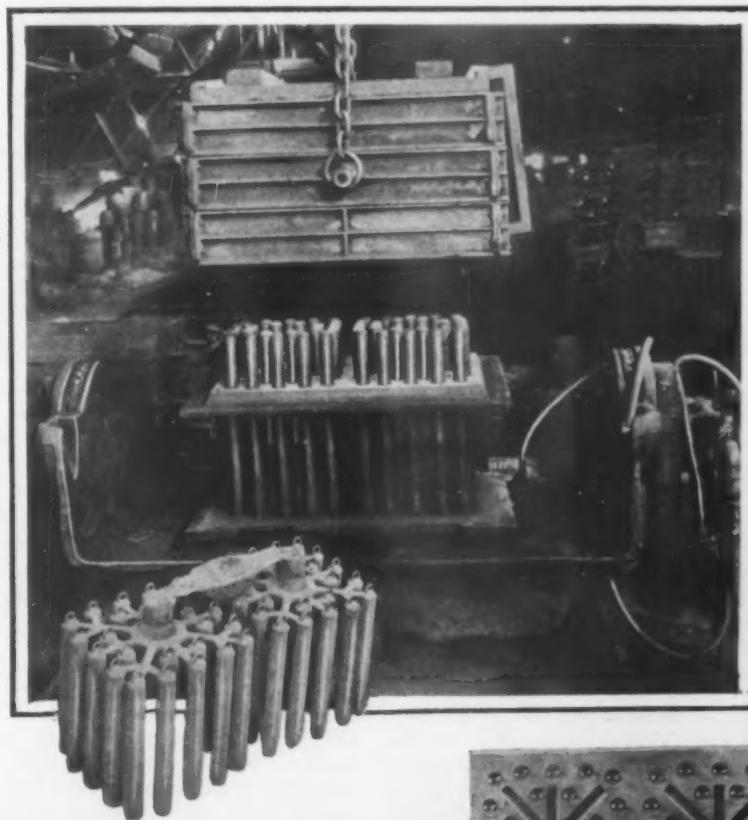
MANUFACTURE of sash weights on a quantity basis, with the attendant lowering of costs, and the lifting of this article from the class of foundry by-products are contemplated in a new method recently patented by George W. Gillespie, Punxsutawney, Pa. The process has been tested in the plant of the Mahoning Foundry & Machine Co., Punxsutawney, with which Mr. Gillespie has been identified for many years. Results have been gratifying, despite the fact that space and facilities of this plant have not permitted the full attainment of the plans of the inventor, in respect to production. With a hard level molding floor instead of an uneven sandy surface, the time lost in leveling the molds before pouring could be avoided. Mechanical handling of sand, which also would have saved time, had not been possible in the experiments.

Machine molding is used throughout the operation. Molds can be made on a jar ram, power roll-over, power draw molding machine, a sand sling-er, a jolt stripping machine, or most simple of all, the ordinary jolt table. Reference to the accompanying illustrations will be helpful in understanding the method. The mold is made up of a solid cast iron plate, called the location plate, to which are securely fastened in an upright position 48 steel tubes of any desired diameter. Over this plate is

fitted another cast iron plate known as the stripping plate, which has holes reamed slightly larger than the diameter of the tubes. The stripping plate has a three-fold function; it strips, forms the core print and makes the runner to each weight in the mold. In the construction of the location plate, the tubes are made of sufficient length to make the longest sash weight desired of the diameter of the tubes. This would be a weight of 9½-lb. in the case of a 1½-in. diameter tube and a 19-lb. weight in 1¾-in. diameter. To make weights of different lengths, an adjusting jump or riser is placed between the location and stripping plates. Whether made with or without the riser, weights of uniform length are produced.

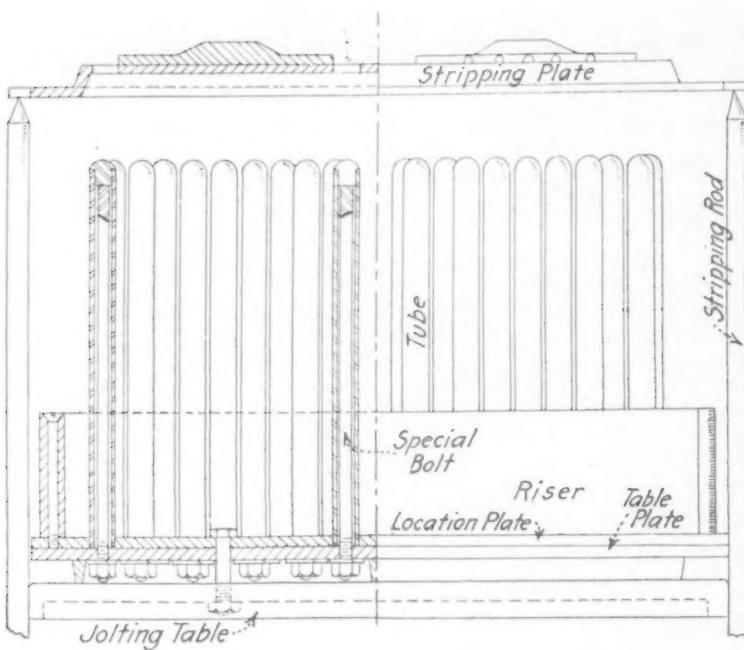
The flasks need not be of special design or construction. They should be of a minimum size of 18 x 36 in. with a depth to accommodate the length of weights desired. Trunnions for crane service are recommended. The weights can be rammed up in wooden jumps, but this is not regarded as good practice on jolting molding machines. While the use of a 6-in. section of cast iron has been found very satisfactory, steel sections have been found to be practical and will stand up under heavy usage and rough handling.

After the loca-

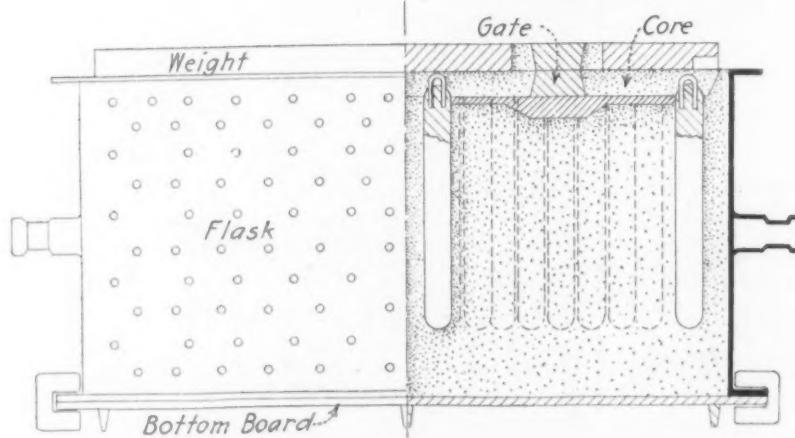


Stripping of the Mold Is Shown In the Upper View, From Which May Be Noted Also the Location Plate and Stripping Plate. A casting of 48 sash weights is in the foreground

The Appearance of the Flasks Before Setting of the Core Is Shown In the Lower Photographic Reproduction. The staple formed wire for the weight eye may be seen in the core at the upper right



Upper Drawing Shows Method of Fastening Steel tubes to the Location Plate, and Arrangement of Adjusting Jump or Riser. The complete mold is shown at the right. The core locates the wire eye, makes the weight number and serves as a cover for the mold, obviating need for a cope. Weight numbers are changed in the core box by unhinging and placing in new heads or buttons. Flasks need not be of special design



tion plate is securely fastened to the jolting table, the stripping plate is dropped over the tubes to the desired depth, governed by the jump or riser, and the flask is placed on the stripping plate, filled with sand and jolted to the right compactness. The flask is then struck off and the bottom board adjusted and clamped. In clamping, the practice is to clamp together the stripping plate, flask and bottom board. The mold is then stripped by hooking the crane harness to the trunnions and raising the mold from the patterns or tubes, or releasing air to the stripping cylinder. The mold is then turned over on the trunnions and placed on the floor or moving belt, as desired. Clamps are released and the stripping plate lifted from the mold. When the operation is on a roll-over machine, the patterns are drawn through the stripping plate the opposite way. The next step is the placing of the core in the mold, and then the runner box is adjusted for the iron.

Time of these operations depends upon the equipment. Experiments and actual performance at the plant of the Mahoning Foundry & Machine Co. have disclosed that with three laborers, only this class of help being used, two shoveling sand and one attending other parts, one mold can be rammed and placed on the floor every 5 min. With mechanical handling of the sand it is figured that the time can be reduced and two men could do the work.

The core can be made in one or two pieces, in a box having the 48 heads or buttons of the weights arranged to locate centrally over the openings in the mold. The weights having wire instead of cast eyes, the staples are baked in the core and thereby locate in the head of the weight. Weight numbers are changed in the core box by unhinging and placing in new heads or buttons. The core locates the wire eye, makes the weight number and serves as a cover for the mold, obviating the

need of a cope. A common laborer can make 48 to 50 cores in 8 hr. and as many as 80 in the same length of time have been made by employing a small roll-over core machine.

A wire instead of a cast eye is an outstanding feature of the weight as produced under the Gillespie method. The eye is made from annealed wire and is formed into a staple in a power press. It is claimed to be superior to the cast eye, as it will not break in ordinary handling or shipping and comes out free of the rough edges which so frequently cut the sash ropes. It is estimated that wire eyes cost from 50 to 75c. per ton of weights, according to the size, the larger the weight the less the cost per ton.

The method is claimed to be the fastest and the cheapest in use today. It is a continuous process and iron can be poured from morning until night if so desired. Weights can be made 48 at a time or as many as may be desired, according to the flasks, or

they can be made at the rate of eight to the gate. Making eight weights at a time, a rapid rate of production may be obtained, since it is an ordinary feat for one man to make 75 flasks, and pour them, doing this on a small jolting table, roll them and place them on the floor in a day.

While a 48-weight mold can be made every 5 min., or 96 in an 8-hr. day, on a basis of 10 molds per hr. there would be 80 per day. That means 3840 sash weights per day, and if they were 6-lb. weights, the most commonly used size, that would mean 23,040 lb. per day. It is claimed that a loss of 1 per cent in cleaning is high, but assuming such a loss, there is a net production of 22,810 lb. On this result, with labor at 40c. per hr. there is a molding cost of about \$1 per ton, this based on the employment of three laborers and one core maker.

Sheet Mill Black Products

Details of the black products from the sheet and tin mill department of the Mansfield Sheet & Tin Plate Co., Mansfield, Ohio, are given in a 48-page reference book just issued by the company. Not only are price-lists and lists of extras covered in the booklet, but such matters as tolerance allowances and a considerable number of tables of gages for both sheet metal and wire, metric system tables, miscellaneous weights and measures used in foreign countries, as well as comparisons of thermometers, coinage values and statements of boiling and melting points of various materials.

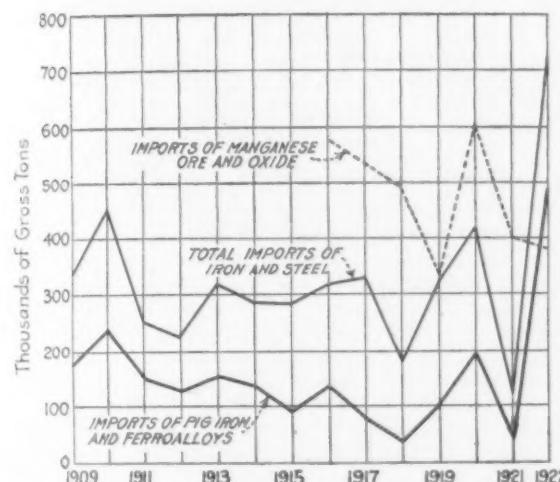
Granted a wage increase of 10 per cent after having been on strike for two days, the employees of the Reading Hardware Co., Reading, Pa., have returned to work.

High Tonnage in Iron and Steel Imports

1922 Figures Nearly Six Times Those of 1921—December Alone 80 Per Cent of 1921 Total—Pig Iron, Ferromanganese and Scrap Predominate

WASHINGTON, April 4.—Establishing a record not approached in some years, imports of iron and steel products into the United States in the calendar year 1922 totaled 714,538 gross tons, valued at \$30,805,262. The explanation lies in the heavy incoming movement of ferromanganese, pig iron and scrap, whose total was 621,006 gross tons. Imports in December aggregated 96,395 tons, valued at \$2,942,583, showing a decrease from November, when they amounted to 141,176 tons,

year are strikingly shown when compared with corresponding periods for 1921, those of December of the latter year being only 8829 tons valued at \$1,163,436, and for the twelve months only 120,578 tons, valued at \$16,677,469. As shown in an accompanying table, England was the principal source of pig iron imports, the quantity taken from that country being 152,833 tons, and of the total ferromanganese imports of 94,592 tons, England supplied 93,038 tons.



Imports of Iron and Steel in 1922 Are Shown to Be Far Above Any Other Year in the Chart. Pig iron and ferroalloys together amounted to more in 1922 than all items in any of the previous years

which established a monthly record. Declines in pig iron imports were registered in December, when they amounted to 54,728 tons, being greatly under those of November, with a total of 98,767 tons. Scrap imports

Imports of Pig Iron and Ferromanganese by Principal Countries

	Gross Tons December, 1922	Gross Tons 12 Months Ended December, 1922
Pig Iron:		
England	22,582	152,833
Scotland	14,635	98,950
Canada	942	15,702
Belgium	4,760	64,449
France	7,770	41,704
Germany	2,094	3,585
Netherlands	1,945	2,537
Ferromanganese:		
England	5,151	93,038
Germany	9	889

showed a slight increase, 28,602 tons from 25,575 tons, while ferromanganese imports dropped to 5160 tons from 6192 tons.

The heavy imports in December, 1922, and in that

Imports of Machinery

	Dec., 1921	Dec., 1922	12 Months Ended Dec., 1921	Dec., 1922
Metal-working ma-chine tools and parts	\$16,760	\$27,038	\$217,616	\$248,105
Agricultural machinery and implements	39,797	205,321	2,086,881	2,558,714
Electrical machinery and apparatus	55,024	74,980	447,688	784,830
Other power generating machinery	309,068	.....	.....	*538,856
Other machinery	264,193	154,798	4,487,894	2,687,239
Vehicles, except agricultural	87,113	196,815	2,044,568	1,566,547
Total	\$462,887	\$968,020	\$9,284,647	\$8,384,291

*Beginning Sept. 22.

Imports of Iron and Steel into the United States (In Gross Tons)

Articles	Dec., 1921	Dec., 1922	12 Months Ended Dec., 1921	Dec., 1922
Pig iron	*3,975	54,728	*27,101	383,445
Ferromanganese	*259	5,160	*9,077	94,592
Ferrosilicon	1,160	1,052	7,858	14,806
Scrap	1,919	28,602	41,469	142,969
Steel ingots, blooms, billets, slabs and steel bars	26	1,760	6,988	27,719
Rails and splice bars	894	891	22,048	26,628
Structural shapes	120	1,447	778	7,823
Boiler and other plates	.....	147	.....	1,141
Bar iron	237	1,170	1,913	8,089
Tubular products	.....	265	.....	879
Round iron and steel wire	.....	136	.....	648
Castings and forgings	.....	81	.....	402
Nails and screws	.....	84	.....	220
Sheets and saw plates	34	17	1,976	3,381
Timplate	63	347	454	2,682
Bolts, nuts, rivets and washers	.....	15	.....	50
Wire rods	142	277	916	1,725
Flat wire and strip steel	.....	66	.....	280
Wire rope and insulated wire, all kinds	.....	50	.....	59
Total	*8,829	96,395	*120,578	714,538
Manganese ore	14,900	18,305	401,254	374,451
Iron ore	2,155	167,221	315,768	1,140,463
Magnesite	5,828	3,504	52,483	119,872

*Revised.

†Not reported separately previous to Sept. 22, 1922.

‡From Sept. 22 to Dec. 31, only.

Imports of iron ore also were heavy in 1922, totaling 1,140,463 tons, manganese ore being only 374,451

Imports of Iron and Steel for 14 Years (Gross Tons)

Year	Total Imports	Pig Iron	Ferroalloys	Manganese Ore and Oxide*
1909	339,099	†176,442	.....	.....
1910	453,564	†237,233	.....	.....
1911	256,295	†148,459	.....	.....
1912	226,070	†129,325	.....	.....
1913	316,368	†156,450	.....	.....
1914	290,393	132,757	†6,146	.....
1915	281,449	84,610	†5,226	.....
1916	319,589	37,682	97,667	576,321
1917	329,922	21,665	55,121	629,972
1918	179,702	2,003	32,708	491,303
1919	322,261	55,198	48,477	333,344
1920	417,581	123,201	73,163	601,427
1921	120,578	27,101	16,935	401,354
1922	714,538	283,445	109,398	374,451

*Not included in "Total Imports."

†Includes ferroalloys.

‡Ferrosilicon only.

tons, while for December the respective tonnages were 167,221 tons and 18,305 tons. Substantial increases also were made in December imports of machinery and vehicles.

Pig iron and ferroalloys together, in 1922, accounted for a tonnage larger than the total imports of iron and steel for any recent preceding year, having 492,843 tons against the total of 453,564 tons in 1910 and 417,581 tons in 1920. These items comprised 69 per cent of the 1922 total imports, compared with 36.5 per cent in 1921, 47 per cent in 1920, a low mark of 19.3 per cent

in 1918 and 53.3 per cent as the average of the five years 1909 to 1913 inclusive.

Manganese ore and oxide imports in 1922 were,

Imports of Iron Ore by Countries

	Dec., 1921	Dec., 1922	12 Months Ended Dec., 1921	Dec., 1922
Spain		181	5,602	52,618
Sweden		22,386	143,234	317,539
Canada	987	317	4,213	2,640
Cuba		60,100	123,222	381,746
Other countries	1,168	84,237	39,497	385,920
Total	2,155	167,221	315,768	1,140,463

*December Imports by Countries
Iron and Steel in Gross Tons*

United Kingdom	45,808	British West Indies	2,712
Canada	16,814	Panama	2,257
France	9,371	Netherlands	2,037
Cuba	5,764	Sweden	1,958
Belgium	5,130	Peru	1,586
Germany	2,793		

with the exception of 1919, the lowest in the past seven years, being only 74 per cent as high as the average of the six previous years.

Improves Lifting Magnet

The Cutler-Hammer Mfg. Co., Milwaukee, has made changes in the construction of its high duty lifting magnets, a heavy skirted outer pole shoe being a feature of the new design. A tough alloy steel of high permeability is used, and the part is designed and fitted over a shoulder of the magnet body in a manner in-



Structural Changes Have Been Made and Lifting Capacities Increased. The magnets are finished with orange red paint

tended to transfer to the heavier body used on the new magnets the shock of side blows on the pole shoe. Bolt heads on both the inner and outer pole shoes are sunk in protective pockets. Average lifting capacities have been increased.

The new construction is used on magnets of 39-, 45-, 55- and 65-in. size. The coils are wound with strap copper with asbestos ribbon insulation. The coil spool is of steel as heretofore, and forms a part of the magnetic circuit, a construction intended to eliminate waste inside the magnet body. In addition to the changes in the flanged pole shoe and the body casting, the new magnets are finished with orange red paint, which has been adopted as standard. The full magnetic type control of the previous design has been retained.

Proposed Tax on Capital Stock of Pennsylvania Companies

HARRISBURG, PA., April 2.—The proposed Pennsylvania manufacturers' tax measure, in which the State iron and steel trade generally is much interested, is now in the Ways and Means Committee of the House of Representatives. This bill would place a tax of four mills on the capital stock of all manufacturing establishments of the State.

That increased revenue for the State government is absolutely essential, is generally conceded. There is no unanimity, however, on just what means shall be adopted to bring a greater return to the State, and many of the proposed measures are doomed to die in the House Ways and Means Committee. Experienced followers of legislative sessions are inclined to believe that the proposed manufacturers' tax will be one of such bills to die.

The total revenue accruing to the State under the proposed bill would be \$24,000,000 annually, according to estimates made by the bill's sponsors and fiscal officials of the commonwealth. Capital stock which would be affected by the bill approximates \$6,000,000,000.

Manufactures of Stoves and Furnaces

WASHINGTON, April 3.—The value of coal stoves and hot air furnaces produced in 1921, according to the Census Bureau figures, was \$101,558,000, compared with \$145,718,000 in 1919 and with \$67,941,000 in 1914. Both the number of establishments and the number of wage earners were lower in 1921 than in either previous year, there being 356 establishments against 400 and 410 respectively, and 24,531 wage earners compared with 32,868 in 1919 and 29,535 in 1914. Salaries and wages absorbed 40 per cent of the reported value of products in 1921, compared with 37½ per cent in 1919.

Gas and oil stoves to the value of \$42,713,000 were produced in 1921, compared with \$55,792,000 in 1919 and with \$21,449,000 in 1914. There were 7921 wage earners in 1921 in 155 establishments.

Stoves and hot air furnaces in 1921 were produced in 57 plants in Ohio, 48 in Illinois, 38 in Pennsylvania, 22 in New York, 21 in Indiana, 21 in Michigan and smaller numbers in other States. Gas and oil stoves were produced in 31 establishments in Pennsylvania, 30 in California, 27 in Ohio, 14 in New York and smaller numbers in 16 other States.

Canadian Iron and Steel Output in February

The production of pig iron in Canada during February showed a further advance over that of the previous month. A total of 44,250 gross tons was produced as compared with 40,739 tons in January, an increase of 3511 tons, or 8.6 per cent. The record for February this year was higher than that for the corresponding month last year by 10,678 tons, or 31.8 per cent. During the month an additional furnace at Sault Ste. Marie, Ont., was put in operation, making seven furnaces in blast at the end of the month.

The output of steel ingots and castings in February exceeded the production for the corresponding month last year by 4149 tons, or 9.8 per cent, and amounted to 46,537 tons as compared with 42,388 tons in February, 1922. The production in February, however, was 1424 tons lower than that of January, when 47,961 tons were produced. The output of ingots during the month receded to 43,234 tons from a production of 44,816 tons in January, a decline of 3.5 per cent.

Charts giving valuable data for mining engineers on flexible tubing for ventilation purposes have been issued in a folder by E. I. duPont de Nemours & Co., Wilmington, Del. The tables, charts and resistance data are based on the best reports obtainable. A copy of the charts can probably be obtained on request to the company.

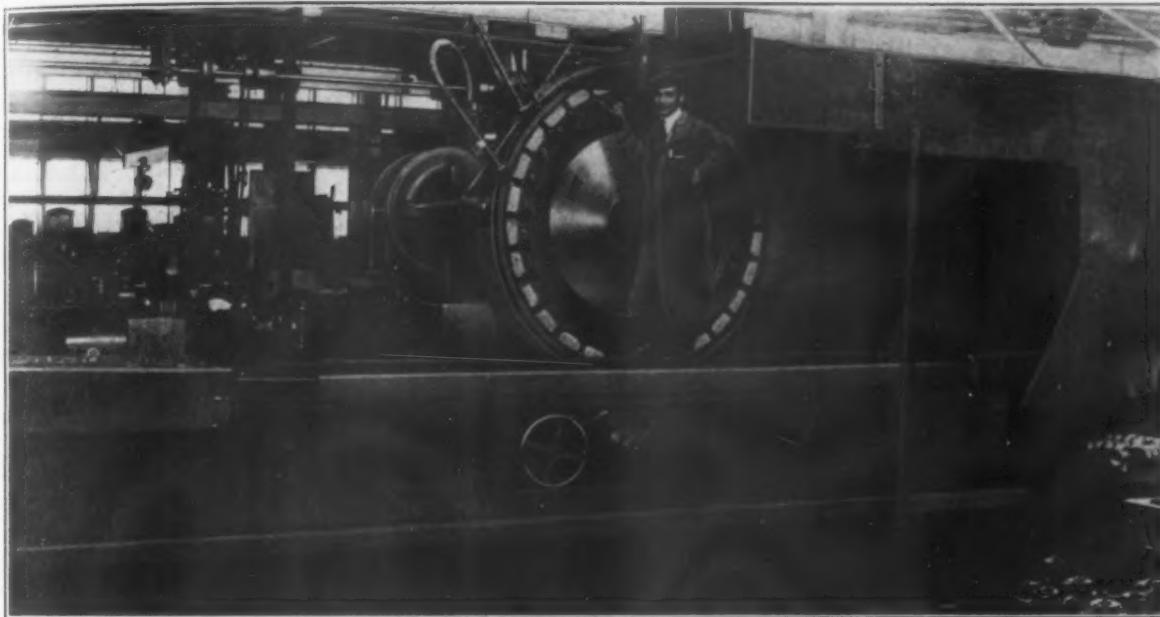
Face Grinder with Wheel of Unusual Size

A face grinding machine with an abrasive wheel having a diameter of 66 in., which is said to be the largest wheel ever put on equipment of this class, is being used by the United States Radiator Co., Detroit, for grinding 60 in. high boiler sections.

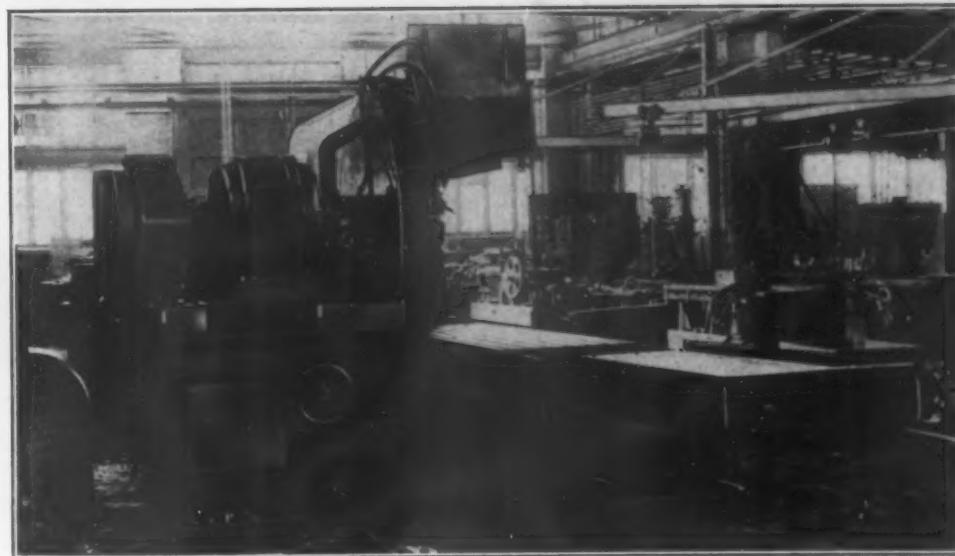
The machine was built by the Diamond Machine Co., Providence, and the abrasive wheel is of its standard sectional type. There are 28 separate blocks of 2 in. face and 7½ in. depth, each block being held rigidly in a special chuck. The design of the chuck is said to permit the use of 90 per cent of the abrasive material in the blocks before it is necessary to replace

The machine is equipped with sheet metal guards, as shown, to prevent splashing and protect the bearings. An automatic system is provided for pumping the solution from a 140 gal. tank located in the rear, collecting it after it has passed the wheel and settling out the solid material before the solution is re-circulated.

The traveling table passes the work across the rotating wheel at a speed of 22 ft. per min. It has a platen 36 in. wide and 110 in. long, and slots are provided for attaching the fixtures and work. Control of the table motion is from the front of the machine as well as at the operator's usual position behind the table. A feature of the machine is the slight shock occasioned by reversal of the heavy table, which is



Face Grinder With 66-In. Wheel Used For Grinding Boiler Sections 60-In. High. The table speed is 22 ft. per min. Control of table is from the front of machine and also from the usual position behind the table as shown. Shockless reversal of the table is a feature.



them with a new set. The wheel dresser built on the machine may be used without interfering with production.

The great cutting power at the face of the wheel is attributed not only to the driving force of a 75-hp. motor, but also to the kinetic energy stored in the rotating wheel, chuck and spindle. The drive from the motor to the wheel is through a Morse sprocket and silent chain, giving a speed of 180 r.p.m. to the wheel. The wheel spindle has a maximum diameter of 9 in. and is provided with ample bearings for rotation and end thrust.

Two nozzles are provided as shown in the illustration for delivering cutting solution or water to the wheel, the supply being adjustable to requirements.

accomplished by means of a patented arrangement of belts and pulleys within the bed.

The weight of the complete machine is more than 40,000 lb.

Power Station Addition

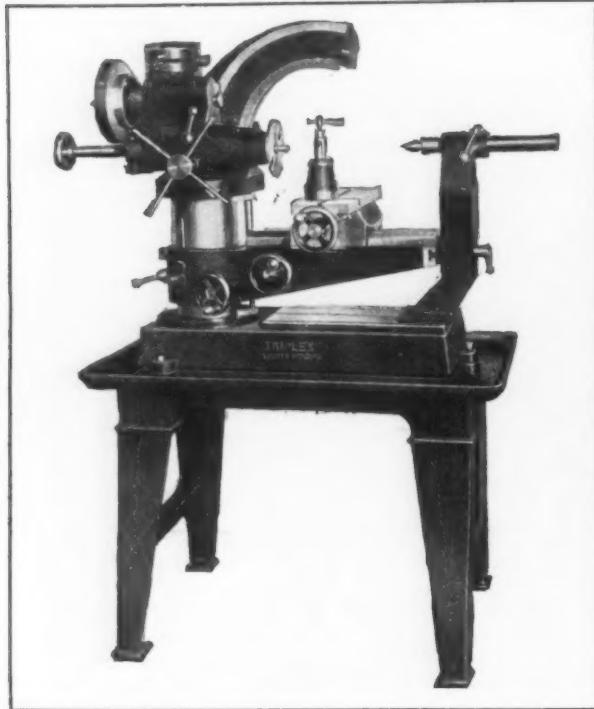
An extension to the south power station of the Aliquippa Works of the Jones & Laughlin Steel Corporation near Woodlawn, Pa., has been started by Dwight P. Robinson & Co., Inc.

The improvement includes a 10,000-kw. steam generator unit with condenser and other appurtenances and turbine driven pump with connections to steam and water mains.

Changes in Combination Bench Machine

The combination bench machine of the Triplex Machine Tool Corporation, 50 Church Street, New York, which is said to be adaptable to all operations usually performed on the bench lathe, bench miller and drill press, has been changed in several details. The original machine was described in THE IRON AGE of Dec. 1, 1921.

A floor stand and chip pan as shown in the illustration has been added so that the machine can be used either as a floor type machine or placed upon



Combination Bench Lathe, Milling and Drilling Machine With Floor Stand

a wooden bench as heretofore. The distance between centers has been increased from 11 to 14 in., and the swing over the carriage increased from 8 to 10 in. The present machine is about 100 lb. heavier.

In mounting the change gear shafts, SKF radial ball bearings are used instead of bronze bearings. The maximum speed has been reduced from 1150 to 1050 r.p.m., the minimum speed of 90 r.p.m. having been retained. In the new model the starting switch is mounted on the head as shown. The machines are being manufactured in the shops of the B. C. Ames Co., Waltham, Mass.

Canadian Alloy Steel Plant to Resume Operations

The Welland Alloy Steel Corp., Welland, Ont., is making repairs and improvements to its plant preparatory to carrying on active operations. The two electric furnaces are being overhauled and repaired. These are of the Heroult type, 9-ton capacity, and were operated throughout the war on steel castings and forging billets. A third furnace, the design of which has not been determined, will be added in order to bring the capacity of the plant up to 100 tons per day. Forging billets of 12, 18 and 24 in. will be produced as well as steel castings. Buildings now available are the main foundry, 500 x 80 ft., and a fully equipped machine shop, 410 x 60 ft. To accommodate the proposed rolling mill another building will be necessary. This will be employed in the production of flats, rounds and squares in commercial sizes.

The Foster Machine Co., Westfield, Mass., textile machinery, employing approximately 300 skilled workers, has granted an increase in wages of 10 per cent. An increase of 20 per cent was asked by the employees.

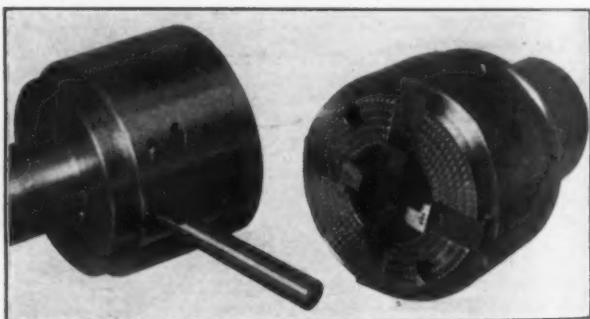
Hardened Self-Opening Die-Heads

The National Acme Co., Cleveland, has brought out a new self-opening die head which is being made in both the non-revolving and revolving types. There are two fundamental changes in these tools, one being that all parts are hardened and ground. The other is in the design, the cam ring being done away with, making the cam portion an integral part of the cup or hood.

The non-revolving type is for use on hand screw machines, turret lathes and other machines where the threading tool is not revolved. It is made in seven sizes, with capacities for straight threads of from 1/16 in. minimum to 3 in. maximum. The head opens when the lead of the thread draws the cammed chasers forward, releasing them from their bearings on the cam that is incorporated in the cup, and is closed by a hand lever which draws the body back into the cup by a telescoping action, bringing the chasers into bearing against the cams to set the head for the next cut. Special closing attachments for automatic turret machines are available to meet particular requirements. An adjustable screw in the side of the head provides for normal variation in diameter. All sizes are floated to compensate for non-alinement of machine and to allow for any variation between the travel of the turret and the pitch of the thread. The absence of a face cap affords quick access to chasers for grinding and permits free flow of oil to flush out the chips. Changing from cutting right-hand to left-hand threads, or vice versa, is done without extra parts or adjustment of the head.

The revolving type opens and closes automatically while running. This is designed for use on automatic screw machines and other tools on which the work is held stationary while the die is revolving or on a machine where both the work and die are revolved. Five sizes with a capacity for straight threads from a minimum of 3/16 in. to a maximum of 2 1/4 in., are available.

When the required length of thread has been cut the threading action draws the cammed chasers forward sufficiently to disengage them from the cam, at



Revolving and Non-Revolving Die Heads. All parts are hardened and ground. The cam portion is an integral part of the cup or hood

which point the chasers spring open. The head is closed automatically by drawing the body back into the head and bringing the chasers into contact with the cam. The chaser blocks and chasers are so fitted into the body piece that they will be firmly held and at the same time assure positive opening action. A free circulation of oil is provided in the head.

Outstanding features claimed for the two types are simplicity and strength. The die has only ten parts outside the chasers. The body and shank, as well as the cam and cup are in one piece, and the bearing of the chasers, directly against the solid cup-cam, eliminates various small parts that are subject to wear. There is no face cap to hold chips and grit. The cup wall is of heavy construction and special alloy steel is used in every working part, including the cup. The chasers are fitted to hardened and ground plates and are hobbed and lapped and ground on the bottom. Projecting chasers permit threading close to shoulder and allow freedom from chips.

New 13 and 15 In. Engine Lathes

The R. K. LeBlond Machine Tool Co., Cincinnati, is showing redesigned 13 and 15 in. heavy duty engine lathes in both cone and geared heads. The new 15 in. machine shows slightly increased dimensions at several points but both follow closely the general design of the 25 and 27 in. lathes described in THE IRON AGE, Dec. 28, 1922.

The single pulley drive geared headstock is of selective speed type providing nine changes of speed from 20 to 350 r.p.m. Gear teeth are of stub form and keyways in the gears are broached from the solid. Shafts run in bronze bearings and are multiple splined. The headstock is filled with oil to the level on the front of the head and oil is carried by the rotation of the gears to a conveyor trough which distributes oil to the gears and bearings. The spindle bearings and multiple disk clutch are also kept flooded with oil from the same source. The front spindle bearing is 3½ in. in diam-

ment has a range of 3 in. included taper, per foot, and turns 15 in. at one setting.

Two types of motor drive are offered, a belted motor drive for constant speed motors, either alternating or direct current, and a variable speed geared motor drive, for direct current variable speed motors. The mounting of the motors is similar to those described in connection with the previous machines. In the 13 in. machine the swing over the shear is 15 in., swing over the carriage 9¾ in. and distance between centers, 6 ft. bed is 2 ft. 7 in. The same dimensions in the 15 in. lathe are, 16¼ in., 11¾ in. and 2 ft. 7 in. respectively. The weight of the smaller lathe with 6 ft. bed is 1800 lb., and of the 15 in. machine 2015 lb.

Census Reports of Manufacture in 1921

Reports of the Census Bureau have been issued covering the manufacture of screw machine products, of wood screws and of wire work including wire rope and cable. In all of these a comparison of 1921 output is made with that of 1919 and 1914.

Screw machine products were turned out in 160 plants employing 5911 wage earners in 1921. The value of product was \$18,365,000, salaries and wages amounting to \$9,240,000. This production may be compared with \$40,015,000 in 1919 and with \$7,248,000 in the 58 plants operating in 1914. Twenty-nine establishments in 1921 were located in Illinois, 25 in Ohio, 24 each in Massachusetts and Michigan, 15 in Connecticut, 14 in Pennsylvania and smaller numbers in nine other States.

Wood screws were produced in 8 plants in 1921, compared with 11 and 12 on the two preceding dates. The 1921 output was valued at \$7,418,000, compared with \$15,460,000 in 1919 and \$6,217,000 in 1914. Of the eight establishments, three were located in Connecticut, two in Massachusetts and one each in Ohio, Pennsylvania and Rhode Island.

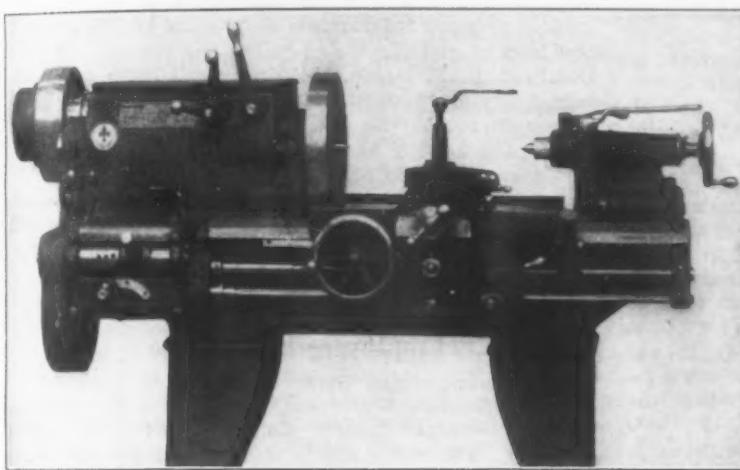
Wire work, including wire rope and cable, was produced in 413 establishments in 1921. The number of wage earners was 11,485, being smaller than at either preceding date. The value of product is reported at \$66,385,000, compared with \$90,549,000 in 1919 and with \$41,789,000 in 1914. Wages paid in 1921 aggregated \$13,314,000. Of the establishments operating in that year 93 were located in New York, 42 in Illinois, 37 in Michigan, 35 in Pennsylvania, 33 in Ohio and smaller numbers in 21 other States.

One feature of this group of manufacture which in 1921 makes it stand out prominently lies in the large overhead reported in the shape of salaries. In the wire work plants, salaries amounted to 39 per cent of the amount of wages. Similarly, in screw machine products, salaries amounted to 41 per cent as much as the wages. With regard to wood screws, the proportion is smaller, being only 27½ per cent.

The exclusive license to manufacture and sell the Mitchell electric vibrating screen has been acquired by the C. W. Hunt Co., Inc., New York, designer and manufacturer of material handling equipment. Some 300 of these screens, it is said, are in operation throughout the world in some of the most difficult wet and dry screening applications.

The American Sintering Co. has commenced construction of a new plant at Hubbard, Ohio, to replace one dismantled some time ago. The new plant will have a daily capacity for handling 1000 tons of sinter. Flue dust from blast furnaces in Hubbard and from other Valley stacks will be reduced at this plant.

A safety, health and sanitation exhibition is to be held at the 106th Armory, Atlantic and Bedford avenues, Brooklyn, N. Y., Oct. 20 to 28. H. K. Hall, 371 Fulton Street, Brooklyn, N. Y., is general director.



New 15-In. Single Pulley Drive Geared Headstock Lathe. Nine spindle speeds are provided

eter at the large end, and 4 1/16 in. long. On lathes with beds 8 ft. and longer the spindle is started and stopped from the apron.

The double friction back geared headstock is of the company's drop brace construction. The front spindle bearing is 3½ in. in diameter and 4 ¼ in. long. Spindle boxes are of phosphor bronze, babbitt lined, and are split, the upper and lower halves being accurately dowelled to assure accurate relocation. Metal shims replace the metal removed in the splitting operation and provide the means for adjustment when needed. Lubrication of the spindle bearings is by oil wells in the bearing caps. The back gears are of the company's double friction type, as in previous machines.

The apron is of the company's patented construction, previously described, and the bed of its heavy duty type, the chief feature of which is the improved compensating V. The quick change gear mechanism is also the same as in previous designs. Stub form gears are used. There are 32 feeds available ranging from 12 to 184, and 32 threads ranging from 3 to 46 per in. can be cut.

A new taper attachment of the carriage type is offered. It is made up of a bracket bolted and dowelled to the back of the carriage which carries the stationary taper bar on which the swivel guide bar is mounted. The taper bar is dovetailed to, and free to slide in, the bracket and the attachment may be put into use at any position along the bed by clamping the bed bracket to the shears. The taper guide bar can be set to the taper desired by means of the set-over knob and rack. Two binder studs are used to clamp the guide bar at the taper desired, the bar being graduated in 1/16 in. per ft., and in degrees. The cross feed screw journals in a sleeve which in turn takes a bearing in the carriage and in the outboard supporting bracket. When turning tapers, the steel draw bar is clamped to the taper shoe by a single bolt, and is said to relieve the cross feed screw and nut of strain. The taper attach-

New Upright Drilling Machines

A 20-in. standard drilling machine for both jobbing and general manufacturing use has been placed on the market by the Superior Machine Tool Co., Kokomo, Ind.

Flexibility is a feature of the design, the unit method of assembly and interchangeable manufacture being intended to permit converting or reassembling the machine to meet requirements. Six styles of the machine are available, and with or without motor drive, groove table and pump. The B 1 machine, shown in the illustration, is equipped with bronze bushings, back gears, geared feed and wheel and pilot feeds.

Housings for bearings are bored standard to receive their bushings, which may be easily replaced when worn. The spindle is of 50 carbon steel, has a No. 3

Morse taper hole and a standard ball thrust bearing. The drift slot for the taper hole is located in the shoulder of the spindle and is exposed at all times. The spindle speeds direct are from 97 to 875 r.p.m. and back geared, from 25 to 226 r.p.m. The spindle feeds are from 5 to 18 thousandths. Three feeds are obtainable by shifting the key in the box, and three additional by a sliding gear on the top shaft. The spindle sleeve is of cast iron, bronze bushed and is graduated

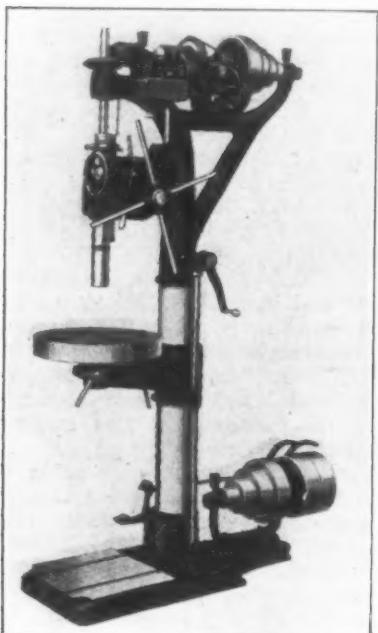
Standard 20-In. Drilling Machine. Six types are available

the full length of travel. The stop collar is arranged to allow for maximum travel without removal. The diameter of the spindle in the sleeve is 1½ in. and diameter of the spindle sleeve 2 7/16 in. The rack is of steel and is secured between shoulders. The rack pinion and shaft are also of steel and operated by worm and gear which are constantly in mesh and run in an oil bath. The gears in the feed box are of steel and are heat treated.

The machine drills to the center of a circle 20 ¼ in. The distance from the base to the spindle is 41 ½ in. and from the base to the spindle 26 in. The traverse of the spindle sleeve and table is 8 ½ in. and 23 ¼ in. respectively. The height of the machine with the spindle extended is 79 in. The diameter of the table is 17 in. The driving pulley is 9 x 3 in. and runs at a speed of 450 r.p.m. Geared motor drive is applicable, motor speeds from 750 to 1800 r.p.m. being suitable. The floor space occupied is 16 x 47 in., and 16 x 54 in. with motor drive. The weight of the machine illustrated, B 1, is 790 lb. net.

Inland Steel Co. Starts Excavation

The Inland Steel Co. has started excavation work for its plant additions at Indiana Harbor, Ind. An open-hearth extension, including four furnaces, will be erected, as well as mill additions. The company now has twenty-two open-hearth furnaces, and the addition of the four new furnaces will increase the steel-making capacity approximately 25 per cent. Details regarding the mill additions have not yet been divulged.



Rarer Metals as Steel Alloying Elements

Experimental work now being performed at the Ithaca, N. Y., field office of the Bureau of Mines on the use of rarer metals as alloying elements in steel deals chiefly with the endurance, or resistance to progressive failure under repeated bending, of heat-treated alloy steels with special reference to molybdenum. Some 50 steels, each with various heat treatments, ranging in composition through plain C, Ce, Mo, V and Cr; CrMo, CrCe, CrV, NiCr, to various NiCrMo, NiCrCe and NiCrV steels are being studied. The ordinary tensile, impact and repeated impact tests have been made and a good deal of endurance data has been collected. Over 1000 endurance test bars will be required, and nearly all of these are ready for testing. Two endurance machines are running night and day, and it will take all the present fiscal year and probably more to obtain the data desired.

While the work is aimed primarily to show the effect of Mo on endurance in comparison with other alloying elements, it is planned also with the view of getting as much information as possible on the general problems of endurance and endurance testing. To this end Prof. H. F. Moore, University of Illinois, who has been studying these problems on a large scale, is kept closely in touch with the work. Especial attention is being paid to very hard steels, which have been dealt with very briefly by other investigators. Many subsidiary problems such as the relation between the rise of temperature method and the method of running till failure occurs, the effect of inclusions, and of the micro-constituents present, are also being studied.

Employees Buy Bonds

Employees of the General Electric Co. bought all of the authorized \$5,000,000 bonds of the recently organized General Electric Employees Securities Corporation. The bonds are in multiples of \$10 and bear interest at the rate of 8 per cent per annum just so long as they remain in the hands of the original holder, and he or she is employed by the General Electric Co. The \$5,000,000 bonds were split up among 24,144 employees, the average subscription among this number being \$203. The ratio of employees subscribing, to the total number of people employed by the company, is 33 per cent. Schenectady workers took the largest number of bonds; Lynn, Mass., workers next, and Fort Wayne finished third. This company, by a plant management cooperative plan, and by investment among its workers, is exceptionally free from labor troubles.

Canton Spring Plant Sold

Several of the plants of the Standard Parts Co., Cleveland, were offered for sale by the receiver, March 29, but only one plant, the Canton Spring plant, Canton, Ohio, was sold. This was purchased by the American Mine Door Co. for \$47,000. Bids for other plants were rejected because they were regarded as too low, and these will be disposed of later at private sale. A bid of only \$825,000 was made for the Eaton Axle plant, Cleveland, which is new, with a book valuation of \$2,500,000. Not a bid was made for the Standard Welding plant, in Cleveland. Two of the company's plants, the Perfection Spring, in Cleveland, and the Pontiac Spring Co., Pontiac, Mich., had previously been sold at private sale.

A reduction of ½c. per 100-lb. in the freight rate on finished iron and steel products from Pittsburgh to Philadelphia and Baltimore recently became effective. The rate to Philadelphia now is 32c. per 100-lb. and to Baltimore 31c. These changes merely restore the usual relationship to port shipments which provide for a rate to Philadelphia 2c. per 100-lb. below that to New York and to Baltimore 3c. per 100-lb. below the New York rate. No change has been made in rates on shipments destined for export.

Basic Business Conditions Less Buoyant

Labor Scarcity and Car Shortage Were Felt in February—
Building Keeps Up at a High Rate—Activity on
a Rising Scale, Tempered by Conservatism

BY SIDNEY G. KOON

WHILE the curve of business activity representing production of basic commodities in the United States is still well above the average for 1919, yet the activity in December, January and February was less than was shown in October and November. Seasonal tendencies drove the December number slightly below par and the rebound in January failed to reach the high level of November. February showed a slight falling off from January, although if partial adjustment be made for the shortness of the month, as shown by the dotted line in the accompanying curve, the figure thus revised would go above October and November and register the highest since March, 1920.

There has been a steady note of caution in the business press for some weeks. It has pointed out that inflation conditions in some respects similar to those of 1920 might be repeated. Prices in nearly all lines have moved upward and other indications reminiscent of the early months of 1920 have not been wanting.

At the same time manufacturers and others have a lively recollection of what happened three years ago, and there is not the same reaching out for large business which was witnessed at that time. The caution preached in financial publications is being actually practiced in productive circles, there being a consistent refusal in most cases to book business far in advance.

This very slowness to take on new business has contributed probably in no small measure to the rise in prices, and even that rise which has been recorded from time to time in market reports is less than is shown in figures actually paid for prompt delivery, where premiums are largely the rule. There is, however, little evidence of the duplication of orders prevalent three years ago, which were partly responsible for the collapse in production schedules that followed.

Some observers have expressed fear of a repetition of the buyers' strike of 1920. This feeling has been occasioned particularly by the present high cost of building construction, and appears to be confined largely to

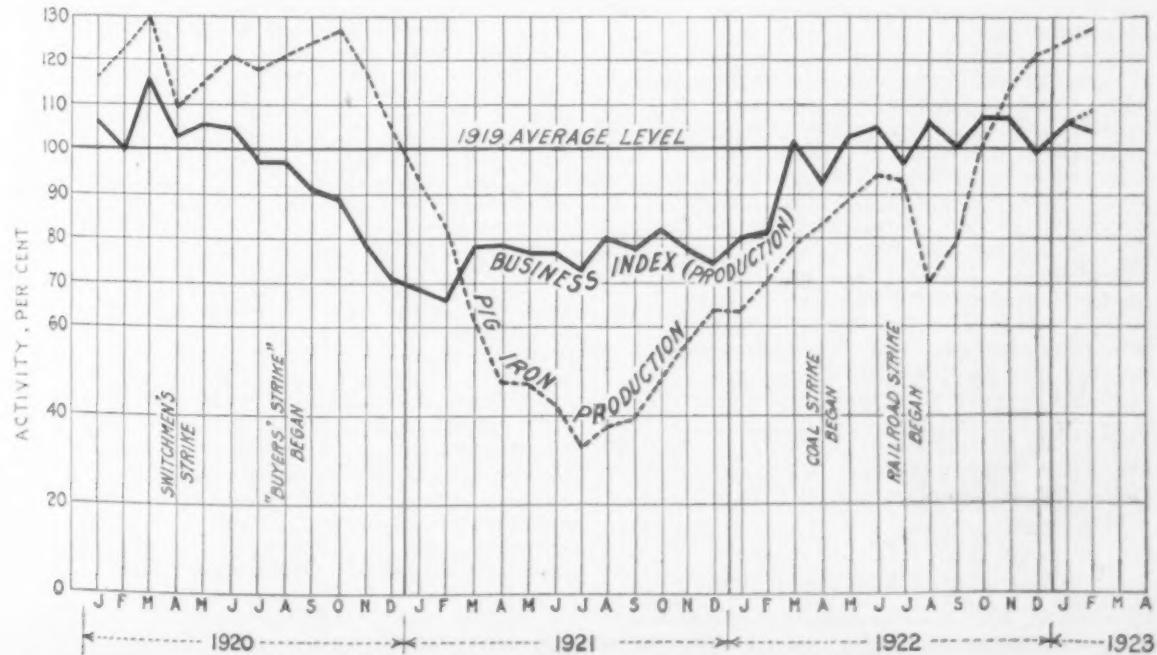
that particular activity. At the same time the pressure for housing is not abated and many experts look for a larger output of buildings in 1923 than the enormous production in 1922. Residential building still continues to hold first position and bids fair to keep it throughout the year, although it is primarily in this type of construction that a buyers' strike has been looked for.

With specific reference to the details shown in the curve, it will be remembered that the business index of production, as carried in THE IRON AGE of July 13 and Oct. 5, 1922, and Jan. 4, 1923, covers 21 separate items arranged in ten groups. The groupings are as follows:

1. Food: beef, flour and sugar.
2. Building construction.
3. Textiles: cotton and wool.
4. Fuel: anthracite and bituminous coal and petroleum.
5. Vehicles: automobiles and trucks.
6. Leather: belting and sole leather.
7. Lumber: yellow pine, Douglas fir and northern hard-woods.
8. Steel ingots.
9. Non-ferrous metals: copper, lead and zinc.
10. Newsprint paper.

All figures are expressed in their relation to the average monthly output of the calendar year, 1919. Dollars do not enter the curve, which is a story of physical quantities only. Each unit which goes into the make-up of the figure represents an element of production, although in some instances, as in textiles, this element is measured in terms of consumption of the raw materials. The separate items under each group are averaged and then the direct average taken of the ten group figures.

Compared with the level of 100 for the average month of 1919, and with 108 for October and November, December showed a drop to 99.8, while January and February, on the basis of figures which were nearly complete for January but partly estimated for February, 106 and 104.3 respectively. As most of the quantities are expressed in terms of the total output for the month, the figure for February should have some adjustment to represent loss of working days. This



Productive Activity in the United States Continues at a High Level Despite Labor and Car Shortage. The short dotted line for February is a tentative adjustment to compensate for the month's shortness

is indicated by a short dotted line running up to an index of 109. The solid curve, however, represents the actual February figures.

Pig Iron Increase Continues

Pig iron production, the companion curve, is still on the upgrade, although, as the curve shows the increase is slower-paced. Pig iron does not enter the general business curve its place being taken by steel ingots. This is because pig iron both as to output and as to price, is more susceptible to local and temporary fluctuations of some violence than is the case with ingots. This is made clear by the high position of pig iron with regard to the business curve throughout the whole of 1920 and for the four months just passed, together with its position far below the business curve through the greater part of both 1921 and 1922. During the three years covered by this review, pig iron has been as high as 130 and as low as 33. While the business curve has not been above 116 or below 66.

Deterrent Elements

Shortage of labor, which has caused manufacturers to exert heavy pressure upon Congress to let down the bars and permit greater immigration, has been largely responsible for a slackening in the rate of growth of production during the past few months. A shortage of railroad cars has had its effect in curtailing production in certain lines and at certain points. There has been little shortage of money available for use of manufacturers and rates have been low, though there are now signs that interest rates will tend upward. But the desire to avoid the troubles of 1920 and 1921

has made manufacturers cautious, particularly when it became a question of new equipment or extension of factory buildings.

Prices in wholesale markets are now approximately 60 per cent above the 1913 level, as compared with 130 per cent in 1920. They have been slowly advancing since last summer and have acted as a deterrent to heavy commitments or to the accumulation of stocks. So long as the restraining elements already mentioned exert their present influence in preventing undue expansion of credit, there should be a continuation of activity on a large scale and little to fear in the way of business trouble. The index of production as carried in the curve may be expected to continue well above the 1919 level, although its further rise will be moderate and subject to fluctuation such as that which has marked its course during the past six months. So many basic industries are working close to their rated capacity that further development in those particular lines must be slight.

While the present situation presents in several elements the proportions of a boom, it has much more of a healthy character than the boom of 1919 and 1920, because of the conservatism with which most operations are now carried on, the moderate profits that are being taken out of business, and the accumulation of a surplus by manufacturers. The reserve ratio of the Federal Reserve Bank is above 75 per cent; in 1920 it fell to 43 per cent. Other factors rather than the mere expansion of credit have already exerted an effect, and may be expected to continue to exert it, in curtailing anything approaching the conditions of a runaway market, with its resultant violent reaction.

TO IMPROVE RIVERS

Secretary Weeks Speaks of Plans for the Ohio and Monongahela

WASHINGTON, April 3.—The importance to the iron and steel industry in the Pittsburgh district of the improvement of the Ohio and Monongahela was emphasized last Wednesday by Secretary of War Weeks in the course of an informal statement he made regarding plans for the expenditure of the \$56,500,000 appropriated for the development of rivers and harbors. The money was appropriated in a lump sum and is to be expended at the discretion of army engineers. Their estimates, as pointed out in THE IRON AGE of March 8, page 669, in a report from the Pittsburgh office, provide for the expenditure of \$7,500,000 on the Ohio River and \$2,000,000 on the Monongahela River in the fiscal year beginning July 1.

Secretary Weeks expressed the conviction that it would be to the best interests of the country to improve the Ohio and Monongahela rivers in order to afford transportation of the steel products from Pittsburgh and surrounding territory. He pointed out that these products can be water-borne through some of the most important industrial and agricultural sections of the country, down to New Orleans and then on to South America or through the Panama Canal to other important markets. The Secretary said that steel companies are now operating barge lines from and to the Pittsburgh district, but that they are increasing their facilities and predicted that the traffic would grow greatly in volume and importance.

Secretary Weeks denied that the Government proposes to operate barge lines. He pointed out that the interest of the Government is in the industrial development of the country. Because of this, it is proposed to develop the Monongahela and Ohio to take care of the traffic.

Coordinated with Railroads

PITTSBURGH, April 2.—Commenting on the announcement in Washington by the Secretary of War of the Government's policy in regard to improvement of the Ohio and Monongahela rivers, W. T. Mossman, who has

general direction of the Jones & Laughlin Steel Corporation's barge line established in 1921 for delivery of steel products, said:

The present common carrier rates granted to river-borne rail and river traffic by the Interstate Commerce Commission are 20 per cent under the rail rates between identical points on the rivers, and, as these rail rates are already considerably lower than rates to points equi-distant inland, on account of river competition, it will be seen what the recognition of our rivers in this fashion by the Government means to producers, shippers and the public in the way of savings in transportation rates, the big factor in the cost of distribution.

These savings will constitute the public's dividend upon the investment of taxpayers' moneys in improvement of the rivers and will in time generously reward the public for its steadfast faith in waterways development.

The advantage of using the rivers comes only when they are fully coordinated with the railroads. In themselves the inland waterways are very limited for use as distributing facilities, but used in conjunction, not in competition, with the rail carriers, they will aid in cutting down the distribution costs for the whole nation.

Even in their present unfinished condition, some idea of the possibilities of using the rivers for widespread distribution of Pittsburgh commodities may be obtained from the fact that Jones & Laughlin's March tow of steel products, consisting of 7000 tons of various commodities ranging from wire nails to heavy structural shapes was distributed by rail from down-river cities to interior points in 10 States. Some of the commodities, after being conveyed 1200 miles in barges, went in 1500 miles farther by rail. When waterways and railways are coordinated in this manner, the result is development of greater business for both of them, as notable illustrations in the United States and Europe have repeatedly demonstrated.

Officers of the Refractories Manufacturers Association chosen at the annual meeting in New York recently are: Frank R. Valentine, M. D. Valentine & Brother Co., Woodbridge, N. J., president; J. M. McKinley, Crescent Refractories Co., Curwensville, Pa., vice-president; C. C. McLain, McLain Fire Brick Co., Pittsburgh, treasurer; Frederic W. Donahoe, Pittsburgh, secretary; George H. Drack, Queens Run Refractories Co., Lock Haven, Pa., and Charles E. Kapitzky, National Fire Brick Co., Cleveland, members of the executive committee for three years, and J. J. Brooks, Jr., Harbinson-Walker Refractories Co., Pittsburgh, a member of that committee for one year.

To Reduce Extent of Business Declines

Ten Recommendations of Hoover Committee on Business Cycles and Unemployment—Postponing Public Work for Dull Periods—Unemployment Funds

THE committee appointed to study means of ameliorating the evils of depression, by Secretary of Commerce Herbert Hoover, as chairman of the President's conference on unemployment, has made public its conclusions, reached after more than a year's study. Its recommendations it discusses under ten headings, as follows:

- Collection of fundamental data.
- Larger statistical service.
- Research
- Control of credit expansion by banks.
- Possible control of inflation by the Federal Reserve System.
- Control by business men of the expansion of their own industries.
- Control of private and public construction at the peak.
- Public utilities.
- Unemployment reserve funds.
- Employment bureaus.

Much of the report is given up to arguing the importance of the collection of fundamental data, stating that "What is evidently needed is an increase in the resources of the Department of Commerce and a larger degree of cooperation with the department in coordinating and extending business information, so that business men and bankers may know promptly the facts about the rate of production measured in physical units, the stocks on hand and in transit, the trend of prices, the volume of sales, and the trend in money rates." Among the data considered highly important are statistics of employment, such as are being collected "with increasing efficiency by the Federal Bureau of Labor Statistics."

In respect to larger statistical service, the committee recommends the expansion and standardization of the statistics now collected by State and Federal bureaus with the final summation and publications of the statistics by the Department of Commerce in order that there may be promptly available a connected, uniform series of facts about the trend of business. In collecting figures on stocks and production the following list of commodities has been suggested to the committee by experts as most significant in showing the trend of the business cycle. "Statistics of these commodities should be collected through a telegraphic service and should be issued immediately."

1. Raw wool and woolen textiles.
2. Raw cotton and cotton textiles.
3. Hides and leather and shoes.
4. Iron and steel and leading fabricated products, such as structural steel and standard tools.
5. Zinc, lead, and copper and leading products of each.
6. Bituminous coal.

In the matter of research, the committee feels that there is need of a further development of special research into economic forces, into business currents, and into broad questions of economic method. "Companies which have developed research departments for physical science have already appreciated the need for outside impartial investigation of the same problems that are being studied within their own laboratories. . . . The forecasting of probable business trends is difficult and can never be undertaken successfully by any kind of public institution, except in a limited field. . . . Research as to the effect of different trends and economic forces is, however, a different problem from forecasting. Such research should be carried on continuously by the Government bureaus."

In the matter of the control of credit expansion by banks, one suggestion is that when prices are rising and business is expanding, bankers should ask borrow-

ers to maintain an increasing ratio of quick assets to current liabilities.

Postponing Construction at Peak of Demand

As to recommendation six, the control of the expansion of one's own business, the report emphasizes that "Planning production in advance and with reference to the business cycle, laying out extensions of plant and equipment ahead of immediate requirements with the object of carrying them out in periods of depression and carrying through such construction plans during periods of low prices in conformity with the long-time trend, the accumulation of financial reserves in prosperity in order to mark down inventories at the peak, and the maintenance of a long view of business problems rather than a short view, will enable firms to make headway toward stabilization."

Perhaps the most important recommendation, in view of its relatively easy observance, and particularly because it is applicable to a period, such as the present, with its shortage of labor, is that suggesting the control of construction work at the peak. The report proposes the cessation and postponement of construction by the Government, railroads, public utilities, and private owners in boom periods when prices are high. "Individual business men and corporations should consider the business cycle far more than they do in planning their construction work."

The tax situation, the report goes on, now tends to make companies naturally extravagant in maintenance charges in good times. The business man whose business has developed to a point where the demand for his finished product is in excess of his capacity to produce is always beset by the arguments of his sales organization desiring to see plant capacity balanced with apparent selling capacity.

Holding back public works and private construction for periods of depression not only gives employment to large numbers of workers when it is most needed but creates a demand for raw materials for construction which in turn stimulates other industries to offer employment. It maintains the buying power of those directly or indirectly employed, it creates a market for goods, and enables the workers, directly or indirectly employed, to buy the products of other industries. Finally, construction work in a period of industrial depression, when costs are lower, is economical.

The essential steps in any general program are to plan construction work, private or public, long in advance with reference to the cyclical movement of business.

In discussing the contribution of the activities of public utilities, the report points out that so far as railroads and public utilities are concerned, both are likely to find their net earnings restored in a period of high prices and high wages and this fact tends to bring about a construction policy similar to the one recommended in the foregoing section.

In the matter of unemployment reserve funds, the report considers the idea of employer, employee, or both, contributing during periods of employment to a reserve fund under separate or joint control to help sustain the worker when unemployed in periods of depression and to equalize and stabilize his purchasing capacity merits consideration. "Neither reserves against decline of inventory value set up by manufacturers nor unemployment benefits of trade-unions are new things to American industrial life. The principle may well be extended."

Finally the committee expresses the belief that if employment bureaus are organized throughout

the country, their reports will show the demand for labor and the number of workers seeking positions and will therefore be another measure of business conditions.

The committee, sometimes termed the committee on the business cycle, has the following personnel: Owen D. Young, president General Electric Co., chairman; Joseph H. Defrees, formerly president of the U. S. Chamber of Commerce; Mary Van Kleek, Russell Sage Foundation; Matthew Woll, vice-president American Federation of Labor; Clarence M. Woolley, chairman American Radiator Co., and Edward E. Hunt, secretary.

The committee enlisted the services of more than 200 employers, labor leaders, economic experts, financial advisors, and social workers. It was requested by Secretary Hoover that they make an exhaustive investigation into the facts and causes of periodic business depression—hard times—and see if suggestions could be made of remedial steps that might be taken by the business community to avoid such interruptions to prosperity and employment.

The committee analyzes the various economic phenomena of the periodic business boom and sequent depression, and its conclusions are that preventive measures must lie in the better handling of business in boom times because depressions are due to over-expansion, inflation, loss of efficiency, waste, and extravagance in the boom periods; that therefore the first point of attack on the problem must be more informed action by individual business men in periods of rising markets in order that excessive expansion may be prevented and the extent of the decline reduced.

Summary of Conclusions

The methods of reducing the extent of the decline lie in the building up of governmental and public utility construction in times of depression, the use of unemployment funds, and the expansion of Federal, State,

and farm employment bureaus. The better control of credit against over-expansion and speculation through individual banks and the guidance of business itself by danger signals of over-expansion are fundamental.

The committee considers that before the banks, business men, and others can take constructive action in the enlightened conduct of business in this relation, there must be recruited and constantly disseminated the fundamental information on which the trends in business can be properly adjudged by each individual business man, and it strongly recommends the recruiting of enlarged and more systematic statistical information by the Department of Commerce and its wider dissemination.

The committee calls attention to the fact that the ebb and flow in demand for consumable goods is less controllable than that of construction of buildings and equipment both governmental and private; that the tendencies of boom periods is to thrust a double burden on the community of providing for increased consumable goods and at the same time undertaking the larger burdens of construction; that therefore the construction industries are to some extent the balance wheel on the ebb and flow of boom and depression.

The Carnegie Foundation made appropriations toward meeting the cost of the inquiry. The National Bureau of Economic Research, the Russell Sage Foundation, the Federated American Engineering Societies, the United States Chamber of Commerce, the American Federation of Labor, the American Statistical Association, the American Economic Association, the Bureau of Railway Economics, and the Department of Commerce were among the bodies which contributed services. The compilation of fact and opinion on which the committee based its conclusions was effected under the direction of the National Bureau of Economic Research, whose director, Wesley C. Mitchell, is known as an authority on the business cycle.

Wages and Hours of Labor in Tin Plate Mills in 1922

Summary figures concerning wages and hours of labor in representative tin mills are given by the United States Bureau of Labor Statistics.

Average earnings per hour in tin plate mills of the United States in 1922 as compared with 1920 show a decrease of 31 per cent; as compared with 1913, an increase of 75 per cent; and as compared with 1910 an increase of 99 per cent. Changes in average full-time weekly earnings differ very little from the changes in hourly earnings. Average customary full-time hours for 1922 show a decrease of 4 per cent from 1910 and of 1 per cent from 1920.

Index numbers for customary full-time hours, hourly earnings and full-time weekly earnings in this industry are shown at right, based on the figures of 1913 at 100.

In the table that follows are shown the most significant facts concerning average hours and average earnings for each of the principal productive occupations in the tin plate mills in 1913 and in 1922. Data

for 1922 were obtained from nine plants. The index numbers above are computed from a combination of the data for the principal occupations here shown.

While the increase in hourly earnings in 1922 over 1913 is 75 per cent for the combined occupations as a whole, the figures naturally vary somewhat for the

Index Numbers [1913=100.]

Year	Customary full-time hours per week	Earnings per hour	Full-time weekly earnings	Average weekly earnings
1910	98	88	87	\$19.09
1911	99	98	97	21.28
1912	99	99	98	21.39
1913	100	100	100	21.80
1914	100	102	102	22.19
1915	100	102	101	22.19
1919	97	220	217	47.56
1920	95	252	253	55.61
1922	94	175	172	37.68

several occupations. Rollers show an increase of only 50 per cent, while shearman's helpers show 150 per cent above 1913. Laborers are 90 per cent higher than in 1913, but 33 per cent lower than in 1920.

Hourly and Weekly Earnings and Average Hours per Week

Occupation	1913				1922			
	Number of full-time employees	Average hourly earnings	Average weekly earnings	Number of full-time employees	Average hourly earnings	Average weekly earnings	Average weekly earnings	
Rollers	356	42.7	113.9c.	\$48.59	400	42.7	170.1c.	\$72.63
Rollers, level handed					188	42.7	92.5	39.50
Roughers	380	42.7	53.8	22.73	429	42.7	89.4	38.17
Catchers	354	42.7	46.3	19.74	456	42.7	81.6	34.84
Screwboys	387	42.7	36.6	15.64	476	42.7	67.5	28.82
Doublers	341	42.7	74.0	31.58	322	42.7	104.5	44.62
Doublers, level handed	46	42.7	56.7	24.20	284	42.7	86.5	36.94
Doublers' helpers	344	42.7	36.2	15.43	345	42.7	68.7	29.33
Heaters	312	42.7	67.9	28.99	149	42.7	117.0	49.96
Heaters, level handed	414	42.7	59.5	25.38	656	42.7	100.1	42.74
Heaters helpers	147	42.7	43.0	18.36	135	42.7	84.6	36.12
Shearmen	126	56.5	48.5	27.34	117	44.7	91.4	40.86
Shearman's helpers	43	55.8	16.5	9.13	33	49.4	41.3	20.40
Openers	210	56.9	27.4	15.58	186	49.0	63.3	31.02
Risers	34	45.1	27.9	12.59	54	42.9	52.8	22.65
Tinners	484	43.6	43.3	18.84	410	43.3	79.6	34.47
Re-dippers	26	53.0	53.6	28.03	33	43.1	102.7	44.26
Branners	37	63.7	19.0	12.14	32	65.1	45.5	29.62
Assorters (women)	171	53.7	16.3	8.75	230	43.3	36.5	15.80
Laborers	575	61.6	18.9	11.64	231	59.4	35.9	21.32

Corporation Offers to Quote f.o.b. Mill

If Pittsburgh Plus Were Abolished in Western Districts, How Would the Price the Consumer Pays Be Affected?
—Chicago District Steel Capacity

BY GILBERT L. LACHER

In the Pittsburgh basing point hearings, which were resumed before the Federal Trade Commission in Chicago last week, W. W. Corlett, counsel for the United States Steel Corporation, asserted that if the issue is merely the mode of quoting steel products his client is willing to stipulate that all its prices be on an f.o.b. mill basis. He pointed out, however, that if the case be interpreted as requiring that the f.o.b. mill prices of all corporation subsidiaries be identical, the Illinois Steel Co. is now open to the charge of discrimination, inasmuch as its prices on plates, shapes and bars at Chicago are \$1 per ton higher than the quotations at Pittsburgh of the Carnegie Steel Co.

This comment raises the question as to what are the real issues of the case. Obviously it is immaterial to the consumer whether steel is quoted f.o.b. Pittsburgh, f.o.b. mill, or f.o.b. delivered point. Assume that Western mills made no reference to the Pittsburgh base price either orally, in letter, in invoices or in contracts. What, then, is to prevent a mill from obtaining, if it can, an f.o.b. mill or delivered price which is equal to the ruling Pittsburgh base price plus the freight from Pittsburgh to mill or destination? The contention of the producers is that they secure as high a price for material as buyers are willing to pay. If Western supply falls short of Western demand and buyers are willing to pay prices equal to the ruling Pittsburgh base prices plus the freight, is there any tribunal which can force producers to accept business at lower figures? As a matter of fact, Western users today are paying the going Pittsburgh base prices for plates, shapes and bars for specific delivery because Chicago district mills are unable to take additional business except for indefinite shipment.

The Operation of "Supply and Demand"

The moot question appears to be whether the difference between the prices of Chicago mills and their Eastern competitors has been an arbitrary amount or whether it has been governed entirely by variations in supply and demand. In this connection it should be noted that testimony has been offered by the Steel Corporation to show the small capacity of Chicago mills until recent years. The inference is that because of the relatively limited supply of steel available from Western sources, prices naturally sought the level of the market at the main center of production, i. e., Pittsburgh.

To supplement this testimony contracts and invoices of the Illinois Steel Co. have been offered in evidence for the purpose of showing that prices obtained were frequently lower and sometimes higher than the ruling Pittsburgh base prices plus the freight. No effort has been made to show how much in dollars and cents these prices departed from the going market. It would be more interesting from the standpoint of the consumer to learn whether deviations from the ruling prices by Chicago mills at any given time were more frequent or greater in monetary terms than those made by Pittsburgh mills.

It does not seem to be the charge of the complainants that there have not been deviations from ruling prices, but rather that competition has been on an artificial level. Testimony has been offered by the

Steel Corporation and by independent steel companies to show that an important reason for locating mills at Chicago was the possibility of obtaining prices equal to the Pittsburgh base plus the freight. This was described as an "advantage of location." It is maintained, on the other hand, that it is not unreasonable to assume that they have been willing to sacrifice business temporarily during times of slack demand rather than abandon a custom which proved to be to their pecuniary advantage over a period of years. Were this charge established the question would still arise whether there is any way of taking from a producer the privilege of foregoing business rather than to reduce his prices.

The Charge of Discrimination

Of course one of the principal charges against the Steel Corporation is that it has been guilty of price discrimination as between customers of its different subsidiaries. Under the Clayton act, discrimination is prohibited except so far as competition dictates. The question arises whether one mill can obtain higher prices than another mill of the same company located in another section of the country. The defense would seem to be that each subsidiary obtains as high a price as competitive conditions permit, and that if, for example, the Carnegie company takes business at lower prices than the Illinois Steel Co., it is because competition forces it to do so. It is also a question whether a single mill can discriminate between customers in different locations. If a Chicago producer charges a higher price to a customer 50 miles west of the mill than to one 50 miles east, does that constitute discrimination in unlawful restraint of trade within the meaning of the terms of the Clayton act? Here again, of course, the defense will probably be raised that the difference in prices was dictated by competitive conditions.

As to Uniformity in Prices

It is to be observed that the case also involves the charge of an adherence to a substantial uniformity of prices—when figured back to Pittsburgh—which has lessened competition in violation of the Clayton act. If this should be established in the opinion of the commission, the question remains, What can be done to govern the future conduct of the mills? If they are prohibited from using a Pittsburgh base price in selling, what is to prevent them from obtaining, if the market warrants it, a mill or delivered price which would be equal to the ruling Pittsburgh price after the deduction of the freight? It is true that such a change in practice might have the psychological effect of getting Western buyers and sellers out of the habit of thinking in terms of Pittsburgh base. It is also conceivable that any consistent effort on the part of Western mills to obtain a delivered price equal to the Pittsburgh base plus the full freight would arouse the antagonism of buyers to the possible extent of causing them to divert their business to other mills.

Position of the Complainants

Regardless of the merits of the case, it must be recognized that Pittsburgh "plus" has become an important issue in the minds of Western consumers of rolled steel. In the main, it matters little to them

whether the trade practice is arbitrarily adhered to, or whether it is the natural result of competitive conditions in the steel market; what primarily concerns them is the belief that Pittsburgh plus restricts the sale of their goods. Their complaint against the practice may be summarized as follows:

It shuts them out of territories close to their plants which they regard as natural markets. They find it impossible to compete at points east of them; they are even deprived of any advantage over Pittsburgh district competitors in their own cities. What is even more important, they are frequently at an actual disadvantage in meeting Eastern competitors at their own plant doors and sometimes even at points west of them. This situation is attributed to the fact that they are forced to pay the freight from Pittsburgh on all of the raw material they buy, including that tonnage which in the process of manufacture becomes scrap, whereas their Eastern competitors, in shipping to the West, pay freight only on their finished products. In some industries where the percentage of waste in manufacture is high, this handicap is severe.

Lower Costs at Chicago

The protest against Pittsburgh plus, then, is founded on the conviction that it is a great obstacle in the path of Western industrial expansion. Evidence has been offered in the basing point hearings to show that steel mill costs are lower at Chicago than at Pittsburgh. The Western steel consumer, therefore, feels that he should get the benefit of those low costs. To be sure prices are not governed primarily by costs; but if it be true that Western mill production is short of Western demand, why not build up capacity in those districts so that demand can be satisfied? This is the reasoning of the manufacturing consumers of steel, and it is entirely probable that in time Chicago district capacity will expand to such an extent that it will be fully equal to consumption. When that condition is reached, it is not unreasonable to expect that prices at Chicago will be as low as those at Pittsburgh. In the meantime Western consumers wish to be sure that they are not paying more for their steel than supply and demand dictate, and they expect the Pittsburgh plus case to disclose whether or not an arbitrary surcharge has been imposed upon them.

CHICAGO, March 31.—With the resumption of the hearings in the Pittsburgh basing point case before the Federal Trade Commission in this city on Wednesday, the United States Steel Corporation offered in evidence a revision of exhibits which had previously been filed. Originally invoices and contracts of the Illinois Steel Co., covering plates, shapes, and bars, had been compared with the Pittsburgh base prices as published in THE IRON AGE for the current week only. The new exhibits include also a comparison with IRON AGE Pittsburgh prices for the three weeks prior to the closing of the contract or the filing of the order. Thus the comparison is made with four separate weekly quotations. A. V. Winter of the Illinois Steel Co., who directed the compilation and analysis of the contracts and invoices, was on the stand throughout all the sessions of the week. Under direct examination, he testified as to certain extras charged above the base prices, which are not available in published form. Among these were extras for such specialties as beaded tires, vehicle springs, automobile springs, plow beams, plow beam billets, sawmill tracks, harrow teeth, grader disks, and plow channels. He also read into the record an explanation regarding extras charged in each transaction in which these products figured.

The hearings were devoid of interesting developments, except on one occasion, when in the course of argument the question was raised as to the issues involved in the case. On this point, W. W. Corlett, counsel for the United States Steel Corporation, asserted that if the purpose of the case was merely to change the mode of quoting steel products, his client was willing to stipulate at once that all prices be quoted f.o.b. mill. It should be noted that the Illinois Steel Co. prices are now higher than the Carnegie prices, although the former quotes f.o.b. Chicago.

COKE FOR EXPORT

Large Production in the Connellsville Region — Coal Operations Hampered

UNIONTOWN, PA., April 2.—Coke production in the Connellsville region continues to increase at a rapid pace. There is every indication that this production will be sustained throughout the second quarter and probably the year. During the week ending March 24, production was 290,210 tons, with 608 ovens being added to the active list. One plant idle for four years was blown in during the week, and other long inactive ovens were added to the producing list. Production during the week ending April 1 will show a considerable increase when the complete figures are available. It is likely that the output for Easter week will drop slightly due to the annual Easter vacation and this may result in a shortage that will be reflected in spot market prices.

A very large percentage of the coke produced now, however, is moving for export. Several large export contracts for the second quarter have been made, some around \$7.75, ovens. Export shipments have suffered somewhat during the past week by the embargo on coke for Greenwich piers. Shipments to Curtis Bay have been going forward steadily and shippers on other lines have shown a desire to arrange for transportation to Curtis Bay, although practically the entire transportation facilities to Curtis Bay are under regular trade.

Coke operators have been able to maintain their high production by reason of preferential treatment in the placing of coke cars. Coal cars also are being diverted for coke loading, especially on the Pennsylvania lines. This has resulted in strenuous protests on the part of coal operators in the region, but the railroad company has stood pat in its policy of maintaining as near full coke loading as possible, coke loading being more than 80 per cent. Coal car placements for commercial loading have dropped to an average not much greater than 10 per cent.

Coke quotations for furnace coke range from \$7.25 to around \$8, while foundry quotations are about \$1 higher.

Of the 141 coke plants in the Connellsville coke region, 114 are now producing. Of this number 55 are running every oven in their equipment and 59 are in partial operation. Of the 22 plants which are idle, several are permanently out of coke operation. Repairs would be so extensive as practically to preclude resumption as coke shipping operations.

By-product coal also is showing a firm trend and output is increasing to the extent of the railroads to handle these shipments.

One hundred and five ovens have been added to the active list at the Champion plant of the Champion Gas Coal Co., this plant having been idle for four years.

Coal production in the Connellsville region is at low ebb because of the serious shortage of cars. This situation has not had the effect of increasing coal prices which have been hovering around \$2. However, coal operators have had no difficulty in providing destinations, while many have been forced to face the alternative of suspending operations because of the deplorable transportation conditions.

The Ford Motor Co. broke its former production record for one day when, on March 19, 5759 vehicles were produced as against 5699 turned out in August, 1922. This figure covers production in the United States only. New marks will probably be reached in the second quarter, as the production schedule for April has been set at 6000 vehicles for each working day.

Imports into India in February, as reported to the Department of Commerce in a cable from Vice-Consul Harold Schantz, Calcutta, included 21,865 tons of bars and channels; 5934 tons of beams, pillars, etc., and 3500 tons of tubes and fittings. Imports of textile machinery were valued at 8,600,000 rupees.

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The Volume of Building

At the end of the war there was much talk about the needs of the country in dwelling houses. There was, it was said, a "tremendous" housing shortage, and it was predicted that there would be great activity in residential construction for many years. The extent of the housing shortage was estimated largely upon the demand for houses, particularly for renting.

The judgment on the subject was, of course, not infallible. It was admitted that there was no adequate information as to the amount of housing space then in existence or the amount there had been at various times in the past in proportion to population. What was known was what men were asking for, not what they were able to afford. The times were not favorable for sound judgment on the part of the individual. The curious doctrine found much currency that the war, with its great destruction of lives and property, would be followed by "a higher plane of living." The idea has waned, but even now there are strikes and quarrels where men seek to obtain what they think they were promised.

In THE IRON AGE of Feb. 8, 1923, under the caption, "Activity and Buying Power," it was pointed out that buying power rather than "needs" is the criterion by which industrial activity should be forecast. In the supplying of daily wants, in food, clothing, amusement, etc., the amount of money the individual has determines pretty closely the amount he spends. In building the case is different. The individual spends the savings he has accumulated or, more commonly, the savings he expects to accumulate. His judgment as to what he can save may be wrong, and apart from that it is the familiar experience for the dwelling house to cost more than was expected.

The point will bear watching, whether there may not be more building than the people really can afford. Mistakes in judgment can occur much more easily in the case of dwelling house construction than in the case of factories, hotels and office buildings. The present active generation has no personal recollection of a real estate panic. One of the prominent things that differentiated the panics of 1873 and 1893 was that the former

included a panic in real estate, with enormous fall in appraised market values, while the latter did not.

Data supplied by the F. W. Dodge Co. to the "Survey of Current Business" of the Department of Commerce make the following showing of building contracts awarded. The figures are in thousands of dollars, monthly averages in the years named:

	Building Contracts, Monthly Averages	1919	1920	1921	1922
Business	\$33,806	\$26,638	\$27,662	\$41,358	
Industrial	42,744	49,080	14,444	27,684	
Residential	70,767	47,177	73,154	112,285	
Educational	9,960	14,358	20,319	25,279	
Hospitals, etc.....	3,266	3,962	5,845	7,219	
Public buildings.....	1,119	2,218	1,859	2,703	
*Public works.....	41,834	47,195	38,265	46,847	
Social, etc.....	6,964	7,594	9,050	9,164	
Religious, etc.....	3,127	3,446	5,933	7,172	
+Total	\$214,990	\$211,102	\$196,648	\$279,410	

*And public utilities.

†Includes military, naval and miscellaneous not listed separately.

There is no occasion to assert that the dwelling houses are not wanted or are not in a sense "needed." The question is whether they can be afforded, whether the judgment of the individuals—it is not a collective judgment but a case of every one deciding for himself—is sound and will be justified by the rate of saving in the future. The erection of industrial structures is based upon calmer consideration, and it is notable in the above showing that, comparing the first two years and the last two years, there was a decrease in industrial building and an increase in residential building.

Analysis of the imports of 1921 and 1922 in their relation to the manufacturing industries of the United States shows that the bulk of the increased imports in the latter year consisted of materials for use in manufacturing. The gain in 1922 over 1921 is reported at \$603,401,000, of which \$514,867,000 or 85 per cent consisted of crude materials for use in manufacturing and of partly manufactured goods for further use in manufacturing. Expressed in another way, the materials for use in our manufacturing plants were 47.7 per cent of the total imports in 1921, but no less than 55 per cent of the total in 1922.

The gain in imports of this class of material in 1922 over 1921 was 43 per cent, while the gain in all other imports, including both foodstuffs and manufactures ready for consumption, was only 6.7 per cent, or less than one-sixth as great.

Stability, Not Socialism, Needed

A noteworthy discussion of the question, "Shall Our Coal Mines Be Nationalized?" is published in the *Outlook* of March 28 in two articles, one by C. J. Golden, president District Nine, United Mine Workers of America, and the other by John Spargo, who long has been eminent as a Socialist and author of numerous books relating to Socialism. Mr. Golden's article largely reviews the development of the mine workers' policy as to nationalizing the mines, making little attempt to show that conditions would be improved by the Government's taking over the properties.

Mr. Spargo's article is a valuable contribution. In opening, he says that as a Socialist during many years he "advocated nationalization of all mines and their control and administration by the Government, with some sort of arrangement for actual management by a body representative of workers, consumers and Government." But Mr. Spargo's opinion has changed greatly. He says: "The collectivism of the war and post-war periods has forced me to admit great disillusionment, to say the least. Wherever one turns for examples, the extensive experiments with nationalization, the substitution of governmental for private or quasi-private capitalist enterprise, show no results which can be regarded as encouraging or assuring. Everywhere one sees inefficiency, waste, retrogression."

Mr. Spargo next considers the experience of the United States, and says that the experiment should be regarded as a warning against any further adventures in the same direction, because Government operation was marked by "incredible ineptitude, by failure to make the most elementary provision for the continuous development of the transportation system, by the most wanton disregard of the larger social interests when immediate political expediency called for the sacrifice of these."

Mr. Spargo is a man not given to extravagant language, but he certainly has not hunted for soft words in expressing his opinion. He believes that any plan of nationalization—meaning the substitution of governmental for private enterprise—runs directly counter to the teaching of experience, and he declares that the great need of the world, the fundamental requisite for economic rehabilitation, is a vast strengthening of the capitalist system of the several countries. He shows that the world needs stabilization and recovery as speedily as possible and that any far reaching experiment in the way of nationalization of industry should be resisted. He asserts that the proposed nationalization opens the way for appalling waste and extravagance, and for such a vast horde of Government employees, interested in getting all they can from a basic necessity of life upon which the whole people are dependent, that its rapid evolution to the position of a dominant group or bloc,

having a strangle-hold upon the national life, is as easy to see as it is terrible to contemplate.

At a time when the financial and social conditions of nearly all nations are thoroughly unsatisfactory, and when many radical leaders, including not only the officers of the miners' unions but the presidents of great railroad brotherhoods, are trying to bring about almost revolutionary changes in this country, the paper by Mr. Spargo is of marked significance and should have nationwide attention.

Dealing Openly with Employees

The way of doing a thing is often as important as the result accomplished. This is particularly true in the relations of employers and employees. The editors who visited Middletown, Ohio, last week in connection with the meeting of the National Conference of Business Paper Editors came to realize, as few of them had realized before, that the conditions as to labor employment in the mills manufacturing steel and paper products were due largely to the fact that the companies take the men completely into their confidence, answering all questions and explaining financial statements and other matters connected with their relations.

The fact that while in the steel mills the eight-hour day is in effect and in the paper mills the twelve-hour day continues is not so important as that in all of the mills the decisions as to hours were made in cooperation with the employees. One of the speakers at the conference pointed out that not many years ago, when he was in the ranks of the workingmen, all the important facts in regard to finances were shrouded in mystery, but that time has passed at Middletown, as well as in some other manufacturing centers. The era of the open book of accounts has come.

In this day of the belittling of the town by some writers—fiction writers, by the way—it is pleasant to record the achievements of one that has accomplished so much as has been done at Middletown. In modern industrial progress the great centers of population have no monopoly of leadership. The progressive town is doing its full share.

Chromium is now recognized as a practically indispensable metal in our industrial life. It enters not only into the manufacture of alloy steel and special alloys, but is also the basis of an important part of the refractory industry. New applications are frequently appearing, one of the latest being its incorporation in chrome-nickel steel castings for frogs and switches for railroads as illustrated in THE IRON AGE of March 15. A statistical measure of the growing uses is given in a total of 65,435 tons of imports and domestic sales of chrome ore in 1913, whereas in 1920 the total was 152,777 tons. Even in the acute depression of 1921 the imports and domestic sales were 82,118 tons, or an increase over 1913 of about 25 per cent. It is estimated that 40 per cent of the consumption of chrome ore in 1922 went into the manufacture of the ferroalloy, 35 per cent into refractories and 25 per cent into chemicals, with the consumption for the year put at about 110,000

tons. The expansion promises to continue. New uses are being developed, particularly for chrome alloys, and in some industries the resulting changes may be revolutionary.

Government Help in Foreign Trade

There are signs that manufacturers in increasing numbers are depending on Government bureaus for help and advice. This is due in part to the fact that those who have been helped have told others, but in no small degree to the effective publicity given to plans and accomplishments through the press. Of particular interest to business have been the activities of the enlarged Department of Commerce, with its commodity divisions, each headed by a man of experience well able to give information of business prospects, sales plans and market conditions abroad.

It fairly may be said that no manufacturer or selling concern considering export trade should make any serious commitments without first taking advantage of the machinery the Government has set up for its aid. In all of the thirty-three branch offices of the bureau in the different cities of the United States it is the aim to supply field reports, dealer lists, foreign tariff rates and other data. The would-be exporter is thus able to secure knowledge of foreign markets that offer the best opportunities, to determine on an export selling policy and to secure such essential information as requirements in packing, financing, foreign tariffs, consular regulations and overseas freight rates. A visit to Washington would cover more detailed items, such as terms of desirable agency agreements, commercial reports on foreign buyers, routes for salesmen and foreign trade marks.

The permanence of this Government service ought to be assured. That it is appreciated ap-

pears from the 135,000 personal calls the director of the Bureau of Foreign and Domestic Commerce reports for 1922, nearly double the number in any previous year.

The Department of Commerce is encouraging cooperation with some 70 trade associations in the promotion of foreign trade through committees representing in all a membership of 150,000. The prospective users of the foreign bureau's service may have their names and their interest in export trade recorded in the Department's Exporters' Index. At present this comprises 15,000 American merchants and manufacturers entitled to information on foreign trade opportunities and receiving confidential news bulletins, for which there is no charge, enrollment at the branch office of the bureau alone sufficing. Clearly, the uninitiated will find a visit to the business bureaus of the Government worth his while.

The 1922 Pig Iron Imports

The much discussed question of the extent of the country's pig iron imports in 1922 is at last settled by definite data. On other pages official reports show that 383,445 gross tons came in last year. This movement exceeds any since the 600,000 ton importation of 1903 and, as is well known, was caused by the fuel strikes of last summer. Great Britain's contribution while large was by no means monopolistic. Of last year's total 251,783 tons or 65.7 per cent was sent by English and Scottish furnaces. About 17 per cent came from Belgium and about 11 per cent from France.

Normally the United States need not import pig iron, but the possibility of importations is by no means to be overlooked as a restraining influence upon too rapid ascensions in the home market.

EXPORT INQUIRY HEAVY

Orders Often Withheld Because of Extended Delivery—British Interested in Semi-Finished Material—Japan Buys Rails

NEW YORK, April 3.—Inquiry for a wide range of finished and semi-finished material continues heavy from practically all foreign markets, including Japan, China, Australia, South Africa, Spain and South American markets, but the number of actual purchases is by contrast small. While the question of present prices in the domestic market enters into consideration on some products, in a majority of instances the obstacle to purchase is date of delivery rather than price. Japan continues to buy fairly large tonnages of rails, South American markets are active buyers of wire and wire products, and China is in the market for second-hand material, wire shorts, tin plate and wasters, galvanized sheets and some wire nails.

While recent demand from Japanese buyers has been chiefly for rails, there has also been inquiry for small steel pipe, some structural material, bars and electrical sheets. On the latter product an inquiry recently appeared from the Hitschi Engineering Corporation for about 300 tons of No. 29 gage electrical sheets. Award was made of 100 tons to the leading interest in the United States and 100 tons to the Allegheny Steel Co., Pittsburgh.

In addition to the locomotives recently reported pending for the Imperial Government Railways, the

South Manchuria Railway Co. is receiving bids for furnishing the parts to construct 15 Pacific type and two Mikado type locomotives in its own shops. A new rail tender, bids on which are being submitted, is from a new railroad in Japan, construction on which has not yet been started. The tender calls for 60 miles of 75-lb. rails and 5 miles of 60-lb. rails with accessories, delivery to be made from March, 1924, to March, 1925. One recent award of rails was for the Onichi Electric Railway Co., which inquired for 10 miles of 75-lb. rails, and awarded 5 miles to Suzuki & Co., New York. The tender of the Ogura Oil Co. for 5000 boxes of tin plate was awarded to the Mitsubishi Shoji Kaisha, New York.

Finishing mills in Britain are evidently beginning to turn to the United States for their raw materials, much as they did through necessity in 1920. A recent inquiry from a United Kingdom consumer called for prices and delivery on 6000 to 7000 tons of sheet bars and billets, but the price quoted is not expected to obtain the business. Another recent inquiry from Europe came from Spain and included steel bars, wire rods, structural material, etc., totaling from 4000 to 5000 tons. In this case also, delivery and price probably will not prove attractive to the buyer.

Sustained Export Demand Expected

Although the recent increase in export business has been largely, if not entirely, a result of the present European situation, exporters feel that even with European steel-producing countries in a competitive position, much of the present business will be retained

by this country for some time. Buyers of steel in foreign markets, it is pointed out, are beginning to realize, and this applies particularly to the Japanese, that although American prices are as a rule higher than European, delivery of the material purchased is a certainty. Dependability, it is believed, will tend to offset any but the greatest of price margins. That there is still available steel in Europe for early delivery is evidenced in a quotation recently received by an American exporter from a Czecho-Slovakian mill on a tonnage of $\frac{1}{2}$ -in. and smaller steel bars, c.i.f. Japan. The price was about 2.90c. per lb., c.i.f. Japan and May delivery. Another export house reports the receipt of a small tonnage of steel bars from a Czecho-Slovakian mill.

Exporters are encountering increasing difficulty in

placing orders with mills. Among numerous exporters with orders in hand for material is Cathrall & Co., 629 West 138th Street, New York, which is asking for 50 tons of wire nails per month for export. The Tropenas Co., 2243 Nostrand Avenue, Brooklyn, N. Y., is in the market for scrap brass and copper for export.

Among foreign construction projects reported to the Bureau of Foreign and Domestic Commerce is an electric railroad in Spain, which will connect Vigo with the towns and villages of Redondela, Canido, Panjon, Ramallosa, Bayona and Gondomar. This line will require the laying of 27.5 kilometers of track, and bids will be accepted until June 29. In Japan the Imperial Government Railways has sanctioned the construction of the double track railroad between Nagoya and Uji-Yamada.

BETHLEHEM TAKES MIDVALE

Midvale Co. Formed, Headed by A. C. Dinkey, to Operate Nicetown Plant

The Bethlehem Steel Co. has formally taken over the plants and executive and sales offices of the Midvale Steel & Ordnance Co. The transaction involving the purchase of the Midvale and Cambria interests was completed at a meeting held in New York on Friday, March 30. The following statement was given out by the Bethlehem Steel Co. after the meeting:

Bethlehem, Midvale and Cambria interests today completed all matters necessary for the consummation of the purchase by Bethlehem of the properties and assets of Midvale and Cambria. Bethlehem has today taken possession of the properties and organization.

Letters are being mailed to the trade, advising of the purchase and the assumption by Bethlehem of all contracts and the manner of conducting the future business of the Midvale and Cambria properties.

W. E. Corey and Percy A. Rockefeller will be elected to Bethlehem's board at the annual stockholders' meeting, Tuesday, April 3.

Carrying out the above announcement, the Bethlehem stockholders' meeting, held at Newark, N. J., on April 3, elected Messrs. Corey and Rockefeller as members of the board. The number of directors was increased from 12 to 15 and H. E. Lewis, Bethlehem, vice-president for a number of years, was elected a director.

Midvale Co. Formed

Following the New York meeting of Friday, March 30, referred to above, the following announcement was made at the office of the Midvale Steel & Ordnance Co.:

Coincident with the taking over of the Midvale Steel & Ordnance Co. by the Bethlehem interests, the new corporation which owns the Nicetown plant will commence business.

The title of the new company is "The Midvale Co." organized under the laws of the State of Delaware. A. C. Dinkey, for many years president of the Carnegie Steel Co. and later president of the Midvale Steel & Ordnance Co., will have charge of the new company.

The official roster will be as follows: A. C. Dinkey, president; H. L. Frevert, vice-president; J. M. Milliken, secretary and treasurer. The operating and sales staff will be made up from the old organization.

Mr. Dinkey will devote his entire time to the affairs of this company and expects to prosecute an intensive campaign, not only in the products now manufactured, but also in such new lines as market opportunities permit.

It will be recalled that the purchase of the Midvale and Cambria interests by Bethlehem did not include the Nicetown, Pa., property of Midvale, which, before its acquisition in 1915 on the formation of the Midvale Steel & Ordnance Co., was operated for years by the Midvale Steel Co., headed by Charles J. Harrah. This plant manufactures crucible and open-hearth steel ingots and castings, hammered car axles, steel gun forgings, forged armor plates, tires, alloy steels and other forms of rolled and forged steel products. The new Midvale company, of which Mr. Dinkey is president, will have its general offices at the plant at Nicetown, and the offices heretofore maintained at 14 Wall Street, New York, will be vacated. Mr. Frevert, who is vice-president of the company, has been in charge of operations at Nicetown as general superintendent, and will continue in charge there. J. M. Milliken, who is secre-

tary and treasurer, has been auditor of the Midvale Steel & Ordnance Co., with offices at Philadelphia.

Midvale Officers Retire.

Apart from Mr. Dinkey, the general officers of the Midvale Steel & Ordnance Co. have withdrawn from the organization. William B. Dickson, vice-president, formerly vice-president of the United States Steel Corporation, retires from connection with the steel industry. A. E. Corey, vice-president in charge of operations, has not announced his plans. John C. Neale, vice-president in charge of sales of the Midvale Steel & Ordnance Co., will leave this week for his farm at Sewickley, Pa. Several of his staff will join the general sales organization at Bethlehem. Some of the men in the district sales office of the Midvale Steel & Ordnance Co. have been offered positions in the Bethlehem organization. There will be a more complete taking over of Midvale men in the sales department than in the other departments.

J. Carson Agnew, who has been assistant to the president, in charge of purchases of raw materials and sales of pig iron in the Midvale organization, and his associate in that department, R. L. Battieger, announce that they will engage in business for themselves and will retain the offices they have occupied on the sixteenth floor of the Widener Building, Philadelphia. They will sell ore, pig iron, coal and coke, ferroalloys and scrap. One or two other Midvale men may be associated with them.

That part of the Midvale sales organization known as the forging division has been moved intact to the office building of the new Midvale company at Nicetown and will become the sales department of the new Midvale company.

Changes at Johnstown.

President Eugene G. Grace of the Bethlehem Steel Co., on a visit to the plant of the Cambria Steel Co. at Johnstown on Monday, announced that L. R. Custer, who has been vice-president in charge of operations there, has been retained as general manager of the plant. R. J. Wysor will go from the Sparrows Point plant to be assistant general manager at Johnstown. C. L. Baker, accountant at Cambria, will have charge of the safety, welfare, pension and relief departments.

T. R. Johns, in charge of Bethlehem's mining operations, will take charge of all mining operations of the company, with headquarters at Johnstown, and Samuel Steinbach will succeed J. C. H. Lubken as superintendent of mines in the Johnstown district.

The steam and mechanical departments at Johnstown will be merged in charge of F. A. Scanlon, from Bethlehem, and the chemical department will become part of the metallurgical department under L. H. Winkler, present chief. E. O. Murray, who was assistant to F. C. Yeates, purchasing agent of Midvale, will become purchasing agent for Bethlehem at the Cambria works. F. E. Thompson, New York, is to become head of the order and shipping department, and S. D. Evans, from the Sparrows Point plant, will be works accountant.

Mr. Grace intimated in his statement at Johnstown that Charles M. Schwab, whose summer home is at Loretto, Pa., near Johnstown, will take an active interest in Cambria operations during the summer months.

GERMAN IRON AND STEEL ACTIVE

**Imports of Pig Iron and Steel Products Increasing
—Blast Furnaces on Ruhr Using Their
Reserve Ore**
(By Radiogram)

BERLIN, FRIEDENAU, GERMANY, April 2.—Markets in the unoccupied provinces of Germany are active, particularly in pig iron, steel bars and steel sheets. Imports of these materials from England, Austria and Czecho-slovakia are increasing. The market for finished goods is duller.

In the occupied district, along the Ruhr, smelting proceeds undisturbed. Owing, however, to French restriction measures, the importation of ore has ceased, and the furnaces are using up their reserves. Ruhr ironmasters are refusing to fulfil contracts for export on the ground that they are forbidden (by the German Government) to pay export duties to the French authorities.

Prices of pig iron are unchanged since Feb. 24; of steel, since Feb. 21. The coal tax has been reduced from 40 to 30 per cent and the net cost of coal has been slightly reduced. The reduction of the gross price, including the tax as reduced, amounts to 16 per cent.

German Steel Trade Striving for Ruhr Independence

No Curtailment of Operations in Unoccupied Parts, but Domestic and Export Sales Decreasing—Continued Ruhr Siege Means Slow Industrial Ruin—Accumulating Stocks in Occupied Sections

BERLIN, GERMANY, March 15.—After two months of the Ruhr occupation and more than a month of embargo on the transport of coal and metal, the steel industry in unoccupied Germany continues to operate with no reports of curtailment of production because of fuel shortage. The same is true of the metal finishing industries, which are now not only operating without Ruhr pig iron and steel but also without the large supplies which formerly came from Lorraine, Belgium and Luxembourg.

The theory that German industry is entirely dependent upon Ruhr fuel and raw and semi-finished materials has been badly shaken. British iron, as well as Czecho-Slovakian and Austrian, is now coming in; and the heavy payments required have been made thus far without shaking the mark exchange from the level of 20,000 to 22,000 to the dollar which it attained a month ago following the Reichsbank's intervention.

Industry in the occupied district has also proceeded almost without a break, the only serious difficulty met with so far being the disorganization of rail and water transport. Conditions, however, are not improving, and though a sudden German breakdown is not likely, the slow ruin of industry both in occupied and unoccupied provinces is almost certain unless the French withdraw, or the Germans—which is not likely—abandon the policy of passive resistance. The Ruhr is today working almost exclusively for stock; and more than 2,000,000 tons of pig iron and semi-finished iron and steel are waiting for release upon the domestic and export markets.

Declining Sales

Commercial Councillor Lustig, director of the Deutsche Eisenhandel Corporation, states that Germany will meanwhile obtain her chief supplies of iron and steel in England; and that the United States is but little considered owing to its large local consumption. Germany's demand, however, is likely to decline, because there are signs of general industrial depression, with a decrease both in domestic and export sales. The depression, still moderate, began last October and received a strong impulse from the great mark-exchange recovery of last month. Unemployment is still increasing.

The Leipzig spring fair, which made a record with 20,000 foreign visitors, did only moderate selling; and even price reductions of 30 to 40 per cent did not tempt buyers. Inland customers held back orders because of the uncertain political and economic situation, and foreign customers found in a great many cases that they could buy machines and other engineering materials cheaper at home. Consequently comparatively few orders were placed. The technical section is enlarging every year and forms the principal attraction of the spring fair. Members of the Association of Ger-

man Machine Tool Manufacturers were grouped for a large exhibit of their products in one of the greatest halls at the fair. Business did not, however, quite come up to expectations.

Last year customers were eagerly buying, and there was little stock, this year turnover was comparatively small, most firms having ample stocks, but customers holding back. Here and there some orders were booked for small machinery or for specialties and accessories, but the general policy of buyers seemed to be to wait. With larger machines and apparatus the fair is generally only a starting point of negotiations which may lead to orders later on.

Costs and Prices

Industry is again meeting with strong foreign competition. The problem is to reduce prices, but wages and other inland costs instead of declining are showing a tendency to advance. In Berlin and other cities there is trouble in the engineering industry about wages and salaries, which the employers refuse to increase. It is generally recognized now that increases in wages alone do not improve the position of the workers and that reductions in prices have a far greater effect by increasing the purchasing power of wages. The Minister of Labor stated in the Reichstag recently that it was of the greatest importance that the level of prices should not be raised at the present moment through advances in miners' wages which would enhance the price of coal and of all other goods. This would rob the country again of a chance to bring prices to a halt and force a reduction.

The Steel combination has decided to leave prices which had not been changed since Feb. 21 unaltered at present, as there has been no alteration in the cost of raw material and production. The price policy of the steel interests is meeting with strong opposition. It is asserted that owing to the strong improvement of the mark and the consequently cheaper imports of foreign ore and coal at the present time, prices of iron and steel, which influence prices in general considerably, should be further reduced especially in view of the present economic and political situation.

One of the industries in the occupied area which is especially affected by the rigorous restriction of exports is that producing finished iron and steel articles and hardware, because their manufacturers normally go to other parts of Germany and abroad. Most of the firms have, however, secured sufficient stocks of raw material and sent their entire stock into unoccupied Germany previous to the new French measures. They are therefore in a position to continue production and replenish their stocks. Apart from the new restrictions there is a gradual reduction in the German export of these goods as a result of the appreciation of the mark. The exchange of orders among firms in occupied and unoccupied Germany for the respective

areas is also being practised which eliminates transport past the French customs barrier.

Germany's Competitive Position

The mark recovery has again raised the question of whether Germany is not losing her competitive capacity. The Swiss economist Jacob Lorenz publishes calculations showing that Germany's dumping ability has practically ceased. On Feb. 1, 1922, Germany's margin of cheapness over Switzerland for metals was 38½ per cent; eleven months later, despite the enormous exchange fall, it was only 9 per cent. The *Vossische Zeitung* publishes comparative figures of the production cost (in marks) of a special machine:

	1913	1922
Wages	300	600,000
Materials	500	6,500,000
Other outlay	450	2,925,000
	<hr/>	<hr/>
	1,250	10,025,000

If export duties and other expenses connected with export are added, a machine costs about 9000 fold as much in marks as in 1913; and with the dollar appreciated only about 5000 fold, the gold cost of the machine is much higher than before the war.

The *Vossische Zeitung* shows that Germany could compete with machinery in the United States with the dollar at 18,900 marks, in England with the dollar at 19,500 m., and in France with it at 33,600 m.

Manufacturers are demanding a reduction both of railroad freight charges and of the 40 per cent coal tax. The reduction of rates has been refused, on the ground that they average only 3200 fold those of 1913, which is less than the general price rise.

The Krupp works has founded an "Eastern Trading Corporation" in connection with the Copenhagen firm Henryk Politur, for selling the products of the Essen firm and of the allied Krupp-Ernemann Co. to Russia, the Russian frontier states and the rest of eastern Europe. The president of the control council is Commercial Councillor Heinrich Ernemann. The Bernsdorff-Krupp Co. is reported to be interested in the Austrian Wollersdorf concern, formerly controlled by the Allgemeine Elektricitäts Gesellschaft.

The Moscow official *Izvestiya* states that despite reports the only German steel company which has received a concession is the Otto Wolff company, of Cologne. Ore concessions to Germans are being negotiated but are not yet complete. The Derumetall concern, headquarters of which are in Berlin, with an office in Moscow, buys up scrap-iron, but has no concession. The Otto Wolff joint holding with the Soviet Government is the Russertorg Co., which will deliver not only steel but also machines, chemicals and miscellaneous goods. It has branches at Moscow, Petrograd, Charkow and Rostoff on Don, and has already delivered to Russia 15,000,000 gold rubles' worth of goods. The steamer Dekabrist has lately delivered to Petrograd 2000 tons of plates, bars, tubes, motor-trucks and aniline dyes.

The only other German concession, apart from Krupp's, which is agricultural, is to the Junkers Aviation Co., of Dessau, which will construct aeroplanes in Russian shops, conduct regular air traffic via Russia between Sweden and Persia, and do air photography. German steel and machinery firms are now granting Russia three to nine months' credits.

Germany Sets Up an Iron and Steel Clearing House

BERLIN, GERMANY, March 15.—German iron and steel manufacturers have developed a plan which is now being carried out, to stimulate production in unoccupied Germany as much as possible. In brief, its features are these: To import coal, pig iron and semi-finished steel; to confine exports for the present to highly finished, high-value products and also to arrange a system of exchanging orders between concerns inside and outside the Ruhr cordon, so as to keep business moving without shipping across the frontier set up by the French.

In carrying out the plan, coal and coke have been brought from the United States, ocean freight rates for coal being \$3.25 per ton and for coke \$5.25 per ton. Iron and steel have been ordered in considerable quantities in England and in Central Europe. Some purchases may be made in the United States, but only to fill export commitments to customers in South America and the Far East. By the cooperation of the Government, import tariffs and freight rates have been reduced so as to facilitate the carrying on of the plan.

Another important feature is the exchanging of orders between plants in and out of the Ruhr through a central agency in Berlin. Under this plan, works in the occupied territory will fill orders from consumers in that territory which originally were placed with mills in unoccupied territory. Reciprocally, works in unoccupied districts will take care of orders originally placed from those districts with iron and steel works in the Ruhr. This amounts to the establishment of an iron and steel clearing house.

Of the pig iron produced in the unoccupied zone, fully one-third is produced in the Siegerland, about one-fourth each in Upper Silesia and Hanover, and the remainder in South Germany and at coast works. The aggregate capacity of all blast furnaces in the unoccupied districts is 2,750,000 tons a year. The rolling mill output in these districts covers only about 40 to 50 per cent of the demand in unoccupied territory, and therefore foreign sources are being drawn upon. Prominent among these are the Upper Silesian works in Poland, which are still operated in the majority of cases with German capital. Czechoslovakian works,

which have had little to do for some time, are now getting ready to take on considerable German business. Middle and South German consumers have placed numerous orders, especially for pig iron and bars in England. From accumulated stocks in Austria considerable shipments are being made to the south of Germany and to Saxony.

In the occupied territory mills are still at work, and it is expected that thousands of tons of steel products will be stocked ready to be shipped out when the present railroad embargo is lifted.

To Give Employees Vacation with Pay

Nearly 50 per cent of the 2200 shop employees of the Norton Co., Worcester, Mass., will receive one week's vacation, with pay, this summer. The privilege is accorded to every shop worker who on June 1 next will have been in the company's employ three years. Work will not have to be continuous in order to be included among the three-year men. But in all cases the employee must have been re-hired by June 1.

The same privilege was extended the employees last year, and the beneficial results attained led the directors to repeat the order for 1923.

The announcement of the decision of the board of directors was made today by the service committee, consisting of General Works Manager George N. Jeppson, Works Manager John C. Spence of the machine division, Vice-President Lewis E. Saunders of the research and laboratories division, and Dr. W. Irving Clark, service director.

The proposed gasoline tax of 2 cents per gallon, now before the Michigan State Legislature, is being contested by the Michigan automobile manufacturers. Representatives of numerous companies held a meeting in Detroit and wired Governor Groesbeck favoring his proposal to make weight the only basis of motor vehicle taxation and urging him to veto the gasoline bill if passed.

MARCH PIG IRON OUTPUT

Exceeds Any Month on Record—Gain Over February 6655 Tons Per Day

Eighteen Furnaces Blown In and Three Blown Out or Banked—Net Gain of 15

All war or peace time records for any month's total output of pig iron were broken by the achievement of the blast furnaces in March, according to data collected largely by telegraph. Comparing any 31-day month in the past, the nearest approach was October, 1916, when 3,508,849 gross tons was made. The production last month was 3,521,275 tons. It also surpasses any other March record, the nearest having been in March, 1920, when 3,375,907 tons was produced.

Production of coke and anthracite pig iron for the 31 days in March amounted to 3,521,275 tons, or 113,590 tons per day, as compared with 2,994,187 tons, or 106,935 tons per day in February, a 28-day month. This is a gain for March of 6655 tons per day. The best previous month on record was October, 1916, when 3,508,849 tons was made, or 113,189 tons per day for the 31 days. The record last month was surpassed in only one respect when in September, 1918, a 30-day month, the rate was 113,942 tons per day.

The total number of furnaces in blast on April 1 was 293 as compared with 278 on March 1, a net gain of 15. The capacity of the 293 furnaces operating April 1 was estimated at 115,800 tons per day as compared with 110,055 tons per day for the 278 furnaces in blast on March 1.

A marked increase in the spiegeleisen production was registered last month, or 13,832 tons. The ferromanganese output was 20,730 tons.

Daily Rate of Production

The daily rate of production of coke and anthracite pig iron by months, from March, 1922, is as follows:

Daily Rate of Pig Iron Production by Months—Gross Tons			
	Steel Works	Merchant	Total
March, 1922.....	53,547	12,128	65,675
April	56,930	12,140	69,070
May	60,619	13,790	74,409
June	62,534	16,167	78,701
July	62,295	15,297	77,592
August	45,672	12,914	58,586
September	53,856	13,935	67,791
October	66,060	19,032	85,092
November	72,177	22,813	94,990
December	75,179	24,398	99,577
January, 1923	79,991	24,190	104,181
February	80,684	26,251	106,935
March	87,625	25,965	113,590

Production of Steel Companies—Gross Tons

Returns from all furnaces of the United States Steel Corporation and the various independent steel companies, as well as from merchant furnaces producing ferromanganese and spiegeleisen, show the foregoing totals of steel making iron, month by month, together with ferromanganese and spiegeleisen. These last, while stated separately, are also included in the columns of "total production."

Production of Steel Companies—Gross Tons			
	Spiegeleisen and Ferromanganese		
	Total Production	1922	1923
	Fe-Mn	Spiegel	Fe-Mn
Jan.	1,306,045	2,479,727	6,874
Feb.	1,311,170	2,259,154	3,610
Mar.	1,629,982	2,716,371	11,600
Apr.	1,707,902	.....	14,998
May	1,879,180	.....	15,432
June	1,876,033	.....	18,273
July	1,931,138	.....	18,873
Aug.	1,415,832	.....	11,402
Sept.	1,615,696	.....	10,681
Oct.	2,047,873	.....	9,193
Nov.	2,165,295	.....	13,232
Dec.	2,330,545	.....	17,007
Total	21,216,691	.....	151,175
			68,587

The figures for daily average production, beginning with January, 1917, are as follows:

Daily Average Production of Coke and Anthracite Pig Iron in the United States by Months Since Jan. 1, 1917—Gross Tons						
1917	1918	1919	1920	1921	1922	1923
Jan. 101,643	77,799	106,525	97,264	77,945	53,063	104,181
Feb. 94,473	82,835	105,006	102,720	69,187	58,214	106,935
Mar. 104,882	103,648	99,685	108,900	51,468	65,675	113,590
Apr. 111,165	109,607	82,607	91,327	39,768	69,070	.....
May 110,238	111,175	68,002	96,312	39,394	74,409	.....
June 109,002	110,793	70,495	101,451	35,494	78,701	.....
July 107,820	110,354	78,340	98,931	27,889	77,592	.....
Aug. 104,772	109,341	88,496	101,529	30,780	58,586	.....
Sept. 104,465	113,942	82,932	104,310	32,850	67,791	.....
Oct. 160,550	112,482	60,115	106,212	40,215	85,092	.....
Nov. 106,859	111,862	79,745	97,830	47,183	94,990	.....
Dec. 92,997	110,762	84,944	87,222	53,196	99,577	.....
Year 104,619	105,496	83,789	99,492	45,325	73,645	.....

Output by Districts

The accompanying table gives the production of all coke and anthracite furnaces for March and the three months preceding:

Pig Iron Production by Districts, Gross Tons				
	March (31 days)	Feb. (28 days)	Jan. (31 days)	Dec. (31 days)
New York.....	226,588	181,215	186,256	174,904
New Jersey.....	12,551	12,740	14,076	14,953
Lehigh Valley.....	83,690	69,877	64,457	57,892
Schuylkill Valley.....	97,065	84,763	85,162	79,271
Lower Susquehanna and Lebanon Valleys.....	44,554	36,147	40,589	37,834
Pittsburgh district.....	790,908	624,331	694,075	682,775
Shenango Valley.....	136,502	124,736	135,962	119,960
Western Penna.....	179,586	148,330	152,475	153,901
Maryland, Virginia and Kentucky.....	109,253	84,310	76,675	83,815
Wheeling district.....	134,026	115,511	125,008	103,144
Mahoning Valley.....	383,438	325,275	345,997	343,095
Central and Northern Ohio.....	319,780	296,168	325,547	312,350
Southern Ohio.....	51,186	49,426	56,478	55,565
Illinois and Indiana.....	533,390	462,376	524,774	500,972
Mich., Wis., Minn., Mo., Wis. and Colo.....	140,266	130,361	147,540	128,518
Alabama.....	254,239	227,254	232,690	218,301
Tennessee.....	24,253	21,367	21,843	19,648
Total	3,521,275	2,994,187	3,229,604	3,086,898

Capacities in Blast April 1

The following table shows the number of furnaces in blast April 1 in the different districts and their capacity, also the number and daily capacity in gross tons of furnaces in blast March 1:

Coke and Anthracite Furnaces in Blast				
Location of Furnaces	Total Stacks	April 1	March 1	
		In Blast	Capacity per Day	In Blast
New York:				
Buffalo	22	17	7,085	16
Other New York	4	2	430	2
New Jersey	4	1	405	1
Pennsylvania:				
Lehigh Valley.....	18	8	2,970	6
Spiegel	2	2	250	1
Schuylkill Valley.....	15	10	3,195	9
Lower Susquehanna	9	4	1,420	3
Ferromanganese	1	1	75	1
Lebanon Valley.....	6	1	155	1
Ferromanganese	2	2	100	1
Pittsburgh district.....	55	55	24,820	52
Ferro and spiegel	4	4	690	4
Shenango Valley.....	19	10	4,405	10
Western Pennsylvania	26	16	5,905	15
Maryland	5	5	1,980	5
Ferromanganese	1	1	90	1
Ohio:				
Mahoning Valley.....	28	27	12,640	26
Central and Northern	26	22	10,315	22
Southern	16	7	1,700	7
Illinois and Indiana	42	33	17,300	32
Mich., Wis. and Minn.	12	10	3,335	10
Colorado and Missouri	6	3	1,190	3
The South:				
Virginia	16	4	720	4
Kentucky	7	3	730	3
Alabama	40	27	8,570	25
Tenn., Ga. and Texas	15	6	700	8
Ferromanganese	1	1	70	0
Total	418	293	115,800	278
				110,655

Among the furnaces blown in in March were the following: B furnace of the Lackawanna plant of the Bethlehem Steel Co. in Buffalo district; B furnace of

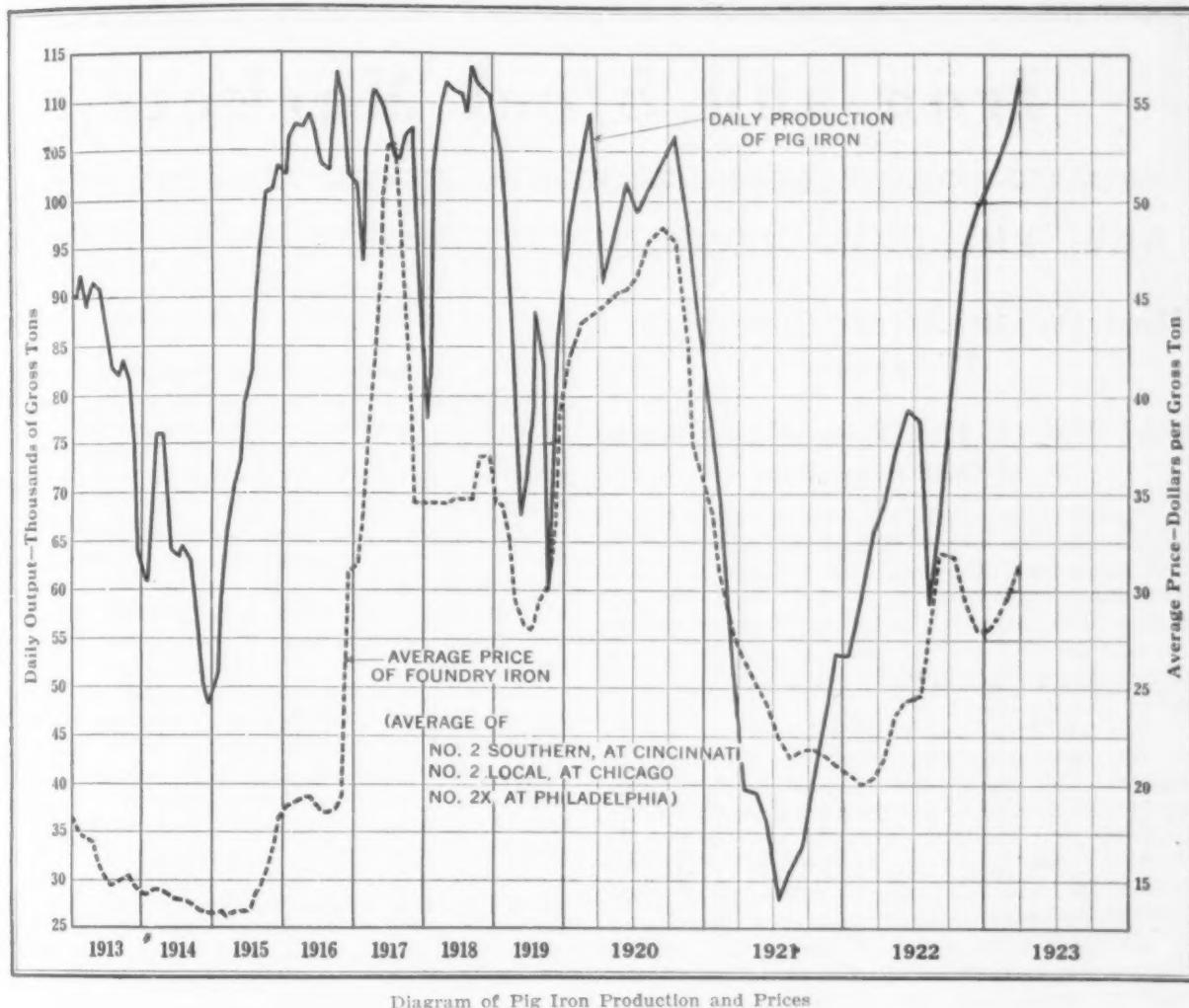


Diagram of Pig Iron Production and Prices

the Bethlehem Steel Co., No. 2 Palmerton furnace of the New Jersey Zinc Co. and the Carbon furnace in the Lehigh Valley; the Delaware River furnace in the Schuylkill Valley; No. 4 Steelton furnace of the Bethlehem Steel Co. in the Lower Susquehanna Valley and the Lebanon Valley furnace in the Lebanon Valley; Edith furnace and No. 3 Isabella furnace of the Carnegie Steel Co. and No. 2 Midland furnace of the Pittsburgh Crucible Steel Co. in the Pittsburgh district; the Rebecca furnace in western Pennsylvania; No. 2 Bellaire furnace of the Carnegie Steel Co. in the Wheeling district; the Niles furnace of the Carnegie Steel Co. in the Mahoning Valley; the Milton furnace in southern Ohio; No. 12 Gary furnace in Indiana; No. 2 Mayville furnace in Wisconsin; No. 1 Oxmoor furnace of the Tennessee Coal, Iron & Railroad Co. and No. 2 Gadsden furnace of the Alabama Co. in Alabama.

Among the furnaces blown out or banked during the month of March were the following: Sarah furnace in southern Ohio, one Detroit furnace of the M. A. Hanna Co. in Michigan and the Rockdale furnace in Tennessee.

Diagram of Pig Iron Production and Prices

The fluctuations in pig iron production from 1913 to the present time are shown in the accompanying chart. The figures represented by the heavy lines are those of the daily average production by months of coke and anthracite iron. The dotted curve on the chart represents monthly average prices of Southern No. 2 foundry pig iron at Cincinnati, local No. 2 foundry iron at furnaces in Chicago, and No. 2X at Philadelphia. They are based on the weekly quotations of THE IRON AGE.

Production of Coke and Anthracite Pig Iron in the United States by Months, Beginning Jan. 1, 1919—Gross Tons

	1919	1920	1921	1922	1923
Jan. . .	3,302,260	3,015,181	2,416,292	1,644,951	3,229,604
Feb. . .	2,940,168	2,978,879	1,937,257	1,629,991	2,994,187
Mar. . .	3,090,243	3,375,307	1,595,522	2,035,920	3,521,275
Apr. . .	2,478,218	2,739,797	1,193,041	2,072,114	.....
May . . .	2,108,056	2,985,682	1,221,221	2,306,679	.....
June . . .	2,114,863	3,043,540	1,064,833	2,361,028	.....
1/2 year. . .	16,033,808	18,138,986	9,428,166	12,050,683	.....
July . . .	2,428,541	3,067,043	864,555	2,405,365	.....
Aug. . .	2,743,388	3,147,402	954,193	1,816,170	.....
Sept. . .	2,487,965	3,129,323	985,529	2,033,720	.....
Oct. . .	1,863,558	3,292,597	1,246,676	2,637,844	.....
Nov. . .	2,392,350	2,934,908	1,115,481	2,849,703	.....
Dec. . .	2,633,268	2,703,555	1,469,086	3,086,898	.....
Ttl. yr.*	30,582,878	36,414,114	16,543,686	26,880,383	.....

*These totals do not include charcoal pig iron. The 1922 production of this iron was 224,731 tons.

New Trumbull-Cliffs Record

YOUNGSTOWN, April 3.—In March the blast furnace of the Trumbull-Cliffs Furnace Co. at Warren established a production record for that plant in turning out 24,758 tons of pig iron. Its daily average was 798.6 tons, comparing with a February daily average of 776 tons. On one day in March the stack produced 1011 tons of iron.

Blast Furnace Notes

Of the 18 furnaces blown in during March, 4 were Steel Corporation stacks, 8 were independent steel company furnaces and 6 were merchant. The 3 furnaces shut down in March were all merchant stacks.

The Keystone furnace at Island Park, near Easton, Pa., has been sold to Horace Boyd, Bethlehem, Pa., and Morris Caplon, Allentown, Pa.

Iron and Steel Markets

NEW PIG IRON RECORD

March Output 3,521,000 Tons—Gain of
15 Furnaces

Steel Works at High Point—Export Buying of Small Proportions

March broke all pig iron records for the United States, with an output of 3,521,275 tons, or 113,590 tons a day. October, 1916, the peak month of war time, came nearest to this, with 3,508,849 tons, or 113,189 tons a day. Steel ingot production for last month is not yet made up, but indications are that a new record was made at steel works also.

The ability of the industry to go on adding to the list of active works still surprises its leaders. No fewer than 18 blast furnaces blew in in March and but 3 blew out, making a net gain of 15. The 293 furnaces making iron on April 1 were producing at the rate of 115,800 tons a day, against a rate of 110,055 tons a day for 278 furnaces on the first day of March.

At 115,800 tons a day on April 1, pig iron production was at a yearly rate of 42,500,000 tons, estimating charcoal pig iron, which is not included in the monthly statistics, at 250,000 tons. The greatest year's output was 39,434,000 tons in 1916.

Every blast furnace in the Pittsburgh district is now in operation, and the Carnegie Steel Co., out of its total of 59 in Western Pennsylvania and Ohio, has 54 in blast, or more than at any time since 1918.

The steel market reflects a conservative attitude on the part of both buyers and sellers. The larger producers consider that prices are high enough, and with capacity taken up well ahead, premium prices can only apply to a small fraction of current output.

Railroad demands figure prominently, in spite of all the car steel, rails and track supplies now on mill books. At Chicago active inquiry for rails amounts to 100,000 tons, half of it for one line. Cars placed in the first quarter of the year number 70,000, or nearly 40 per cent of the 1922 business.

Some automobile companies have come into the market for their bars and forgings for the second half year. One large producer will reserve for such delivery but without naming prices.

In some cases postponement of building projects is found to be as much due to inability to get delivery of structural steel when wanted as to recent advances in prices.

Implement makers are getting more orders and are wanting more steel. Foreign demand for implements is on a larger scale.

Advances to common labor in the building trades, that at Pittsburgh being to 60c. an hour, with 70c. after July 1, are a factor in the steel works labor situation. Rolling mill outputs are more affected by this competition than those of blast furnaces and steel works.

As high as \$47.50 has been paid for sheet bars for early delivery. In sheets and tin plates some of the high prices lately paid have been due to the

inability of consumers to get full deliveries on their contracts.

A southern company has placed a pipe line contract calling for 7000 tons with a Central Western mill.

That car builders are well booked did not prevent the placing of 6800 freight cars this week, and there were inquiries for 7500 more, though it is intimated the postponement of B. & O. car buying is due to high prices. There is notable activity also in locomotives and in passenger cars.

Public utility work took nearly 45 per cent of the 32,000 tons of fabricated steel structures awarded in the week. About 30 per cent represented private enterprises and the remainder was public and railroad work. The tonnage of new projects coming up was within 5 per cent of that closed.

A decided lull has come in the pig iron market and the buying for third quarter has almost entirely stopped, while moderate tonnages are being placed for second quarter delivery. The upward trend of prices has been checked to the satisfaction of both buyers and sellers. The latter realized the danger of a too rapid ascent.

At the advance of 50c. in Lake Superior ores, there has been rather free buying at Cleveland, although some furnaces are covering requirements up to September only.

The movement of coke abroad has been checked by an embargo on shipments to Philadelphia, where about 2000 cars loaded with coke have caused serious congestion. Production of coke in the Connellsville region is very heavy and prices of furnace grades are somewhat lower.

Some export steel business has come to this country because German works could not deliver, but Germany has done little direct buying here, apart from coal and coke. Japan continues to buy American rails and there is rail inquiry from South America.

For the third week, THE IRON AGE pig iron composite price remains at \$30.86 per gross ton, compared with \$25.96 the first of the year, and with \$18.47 one year ago.

THE IRON AGE composite price for finished steel has advanced to 2.810c. per lb. from 2.789c. last week. Early in January it was 2.446c.; one year ago, 2.048c.

Pittsburgh

Both Buyers and Sellers More Conservative— Prices Steady

PITTSBURGH, April 3.—While steel buyers who must have supplies in a hurry find it necessary to climb rather high to secure them, this being particularly true of sheets and tin plate, the situation on the whole reflects a more conservative inclination on the part of both producers and consumers. The larger producing interests express the belief that prices are high enough, barring, of course, further increase in the cost of production through a wage advance, talk of which still persists, notwithstanding labor supply is sufficient for the industry to be making records in the matter of ingot and pig iron outputs. The shortage of labor is felt in the finishing mills rather than in steel works or

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

	Apr. 3,	Mar. 27,	Mar. 6,	Apr. 4,
Pig Iron, Per Gross Ton:	1923	1923	1923	1922
No. 2X, Philadelphia†	\$33.14	\$33.14	\$31.14	\$21.34
No. 2, Valley furnace†	31.00	31.00	30.00	19.00
No. 2, Southern, Cin'to.†	31.05	31.05	30.05	20.00
No. 2, Birmingham, Ala.†	27.00	27.00	26.00	15.50
No. 2 foundry, Chicago*	32.00	32.00	30.00	20.00
Basic, del'd, eastern Pa.	30.25	30.25	28.50	20.00
Basic, Valley furnace	31.00	31.00	28.50	18.00
Valley Bessemer, del. Pitts.	32.77	32.77	30.77	21.46
Malleable, Chicago*	32.00	32.00	30.00	20.00
Malleable, Valley	31.00	31.00	30.00	19.00
Gray forge, Pittsburgh	32.27	32.27	31.27	20.71
L. S. charcoal, Chicago	36.15	36.15	34.65	26.00
Ferromanganese, furnace	125.00	120.00	110.00	62.50

Rails, Billets, Etc., Per Gross Ton:

O.h. rails, heavy, at mill	\$43.00	\$43.00	\$43.00	\$40.00
Bess. billets, Pittsburgh	45.00	45.00	42.50	29.50
O.h. billets, Pittsburgh	45.00	45.00	42.50	29.50
O.h. sheet bars, P'gh.	47.50	45.00	42.50	31.00
Forging billets, base, P'gh.	52.00	52.00	50.00	34.50
O.h. billets, Phila.	50.17	50.17	47.67	35.24
Wire rods, Pittsburgh	50.00	50.00	50.00	38.00
Cents	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	2.35	2.35	2.25	1.40
Light rails at mill	2.25	2.25	2.15	1.45

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.825	2.825	2.575	1.81
Iron bars, Chicago	2.60	2.60	2.50	1.60
Steel bars, Pittsburgh	2.50	2.50	2.35	1.50
Steel bars, Chicago	2.84	2.84	2.30	1.60
Steel bars, New York	2.84	2.84	2.69	1.88
Tank plates, Pittsburgh	2.50	2.50	2.35	1.40
Tank plates, Chicago	2.84	2.84	2.50	1.60
Tank plates, New York	2.84	2.84	2.69	1.78
Beams, Pittsburgh	2.50	2.50	2.35	1.50
Beams, Chicago	2.84	2.84	2.40	1.60
Beams, New York	2.84	2.84	2.69	1.88
Steel hoops, Pittsburgh	3.30	3.30	3.05	1.90

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Composite Price, April 3, 1923, Finished Steel, 2.810 Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe, and black sheets

These products constitute 88 per cent of the United States output of finished steel

March 27, 1923,	2.789c.
March 6, 1923,	2.674c.
April 4, 1922,	2.048c.
10-year pre-war average,	1.689c.

Composite Price, April 3, 1923, Pig Iron, \$30.86 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham

March 27, 1923,	\$30.86
March 6, 1923,	28.77
April 4, 1922,	18.47
10-year pre-war average,	15.72

blast furnaces, and it is pretty well established that while ingot production is at least 90 per cent of capacity, finishing mill operations do not average over 80 per cent. Common labor in the building trades here is to be paid 60c. an hour until July 6, when it is to go to 70c. an hour, and this development, it is believed, fore-casts advances in steel mill scales.

On the other side of the picture, it is reported the Baltimore & Ohio Railroad has deferred car purchases because of high costs, and fabricating interests which are observing Steel Corporation prices on plain material in their bids find the response rather discouraging.

Higher prices have been named by some makers of bolts, nuts and rivets in the past week, as these interests have begun to feel the effect of high costing raw material and the same cause is operative in higher levels for cold-rolled strip. The strength of sheets and tin plate finds its explanation in demand created by the fact that deliveries against contracts are proving insufficient for actual requirements of consumers. A sheet maker who had to have a supply of sheet bars promptly found it necessary to go to \$47.50 to secure them. One independent wire manufacturer has announced an advance of \$2 per ton and somewhat higher prices for nails also are involved in a revision of extras by the leading interest, which has been adopted by most independent producers. Premiums for delivery appear

to be less frequent than they were recently and involve rather unimportant tonnages.

The pig iron market is dull and efforts to put prices higher do not seem to be very successful. All indications point to lower prices for scrap, since there is an increased movement from producing centers and important melters here are still largely out of the market. The coke and coal market, instead of strengthening as some had expected on account of absence from work of the miners in observance of Easter holidays, actually has grown weaker.

The record of blast furnace operations in this and nearby districts makes a highly favorable showing as the new month begins. Every one of the 59 furnaces in the Pittsburgh district proper is in blast, the Carnegie Steel Co. having blown in its one Isabella furnace and its Edith furnace in Pittsburgh since a week ago. This company now has 54 of its 59 furnaces in blast, having recently started its second Bellaire, Ohio, furnace, a record exceeded only once before in recent years, that being late in 1918, when every one of its furnaces was on, under the pressure of wartime demand. Of the 138 blast furnaces in this and nearby districts, only 15 are now idle, and in the next two weeks the number of inactive stacks will be further reduced by resumptions by the Ella furnace, West Middlesex, Pa.; the Stewart furnace, Sharon, Pa.; the

second stack of McKinney Steel Co., Josephine, Pa., and the furnace of Weirton Steel Co., Weirton, W. Va., to which coke is already going. Of the idle furnaces there are at least four which are so obsolete as to be impossible of operation under existing conditions.

Pig Iron.—It has been a very quiet week in this market, although merchant furnace operators report some interest in third quarter tonnages of foundry iron and we note a purchase for that delivery by a sanitary ware interest at \$31 to \$32. Some producers are unwilling at present to quote against third quarter inquiries, but this has occasioned no uneasiness among consumers, who are well supplied for the present quarter and feel reasonably assured that third quarter tonnages will not command much more than today's prices. Current prices are satisfactory to some makers, who admit that there is a fair profit, even allowing for the relatively high coke costs and the recent advance in ore prices. Interest in the steel making grades is very low and if the market is not weaker, there being some producers who want business, it certainly is no stronger. Low phosphorous iron also is slow of sale with no change in the price. W. P. Snyder & Co. make the average price of Bessemer iron from Valley furnaces for the month of March \$30.26 as compared with \$28.02 for February, and on basic, \$30.02 against \$26.38 for February. THE IRON AGE average for March on Valley Bessemer iron was \$30.25, and on basic \$30.12½.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.77 per gross ton:

Basic	\$31.00
Bessemer	31.00
Gray forge	\$30.50 to 31.50
No. 2 foundry	31.00 to 32.00
No. 3 foundry	30.50 to 31.50
Malleable	31.00
Low phosphorus, copper free	36.00

Ferroalloys.—A good inquiry is observed for spiegeleisen in this district, but it is for more prompt delivery than can be readily met. The principal commercial producer already is sold to the fourth quarter and has little for sale for that period. The nominal quotation of this interest is \$40 for single carloads of 19 to 21 per cent material, but that price is for fourth quarter shipments. The market in other directions is rather quiet, due to the fact that consumers are pretty well covered against their requirements for the next few months. British producers of ferromanganese are falling a little behind in their shipments on contracts, it is reported in some quarters, and there are some fears that unless this condition is corrected, a shortage is not far off. Quotations on ferromanganese are unchanged. Demand for 50 per cent ferrosilicon still exceeds the available supply and prices are very firm for early shipments. Ferroalloys prices are given on page 1001.

Iron and Steel Bars.—Buyers who find it necessary to have early supplies are largely dependent upon producers with high costs and selling prices commensurate with that fact. Leading mills here are pretty heavily sold up and the Steel Corporation, which is quoting 2.35c., is not promising deliveries at that figure until well into the third quarter. Leading independent mills also are unable to give definite delivery promises on new business at today's quotations. The going market for specified delivery is quotable from 2.50c. to 2.75c., base, Pittsburgh. Iron bars are firm.

We quote steel bars rolled from billets at 2.35c. to 2.75c.; rail steel reinforcing bars, 2.25c. to 2.35c.; refined iron bars, 3c. in carloads, f.o.b. mill, Pittsburgh.

Wire Products.—American Steel & Wire Co., effective March 28, increased the extras for galvanizing nails to \$2.25 per 100 lb. on longer than 1-in. and to \$2.50 for less than 1-in. This change based on the high cost of spelter, amounts to 75c. per 100 lb. on the longer nails and 50c. per 100 lb. on the shorter ones. The company also has advanced its extra for blued nails to 50c. per 100 lb., an increase of 25c.; the extras on fine nails, bright and coated, 25c. per keg and those on berry box nails 50c. per keg. These changes have been generally adopted by independents. The leading interest, which hitherto has had a different price on galvanized barbed wire and galvanized fence staples, now quotes both products at one price, \$3.70 base. Pittsburgh Steel Co., effective yesterday, advanced

prices \$2 per ton throughout the list, now quoting plain wire at \$2.75 base per 100 lb. and nails at \$3.00 base per keg. Cambria Steel Co. last week went to \$3 base for wire and \$3.10 base for nails. All makers are practically sold out until July 1, on everything except galvanized barbed wire and woven fence and quotations mean little except on such requirements of regular mill customers as can be fitted into existing schedules. Pressure for supplies still is heavy and much business is being turned down because makers are trying to avoid becoming obligated for third quarter tonnages at this time. Prices are given on page 1000.

Plates.—The Erie Railroad has distributed orders for 3000 cars to local plants. The Pressed Steel Car Co. will build 1000 box cars requiring about 11,000 tons of steel and the Standard Steel Car Co. 1000 70-ton gondolas and 1000 box cars for which approximately 27,000 tons of steel will be required. This business constitutes no fresh demands upon steel makers, as the tonnages were under option when the business was closed. The demand for plates in connection with storage tanks has fallen to small proportions because tank orders are not forthcoming at the prices now asked for them. The specified delivery market on plates is from 2.50c. to 2.75c. the lower quotation applying on deferred and indefinite deliveries. Prices are given on page 1000.

Structural Material.—Delivery in about 60 days is about as early as any of the mills can promise, and most of them have obligations that preclude acceptance of additional tonnages for shipment before the third quarter. Structural shops in this district are all well engaged and as plain material is not coming to them as freely as could be desired, they are indifferent to new projects where early delivery is essential. One award of 2000 tons and another of 4500 tons were placed with local shops in the past week. Plain material prices are given on page 1000.

Semi-Finished Steel.—Prices still tend upward, particularly on tonnages for early delivery. We note one sale of 2000 tons of sheet bars for delivery in 30 days at \$47.50, Youngstown, and that price appears to be minimum on open hearth bars for early shipment. There also was a recent sale of sheet bars of the same tonnage for second quarter shipment at \$42.50, Youngstown, to the same buyer, but not by the same seller. In this case, the buyer was a regular customer of the seller and this circumstance explains the price. The Steel Corporation has not announced its second quarter price on sheet bars and as its obligations outweigh its supply, it may not make a formal announcement as to prices. Billet and slab prices are not very well established, since business is markedly light owing to a dearth of supplies, but it is apparent that less than \$45, Pittsburgh or Youngstown, cannot be done for reasonably prompt shipment on base size billets or on slabs and on the latter some makers are asking \$47.50 and the same price on small billets. The American Steel & Wire Co. has announced an advance of \$2 per ton on wire rods and is now quoting \$49 for No. 5 to ¼-in. and \$51.50 for coarser than ¼-in. Practically all of the independent makers are out of the market, but one of them recently announced the price of \$55. Actual selling prices are indefinite because so little is being done, due to the lack of offerings, but \$50 is as low as the base sizes could be bought if some of the independent mills had any to sell. There was a recent offer of \$70 base on some acid rods for export, but none of the local mills could accept the business. Skelp prices are purely nominal because so little is changing hands. Prices are given on page 1000.

Bolts, Nuts and Rivets.—An advance of approximately 10 per cent in bolt and nut prices was announced by one maker here late last week, but as yet has not been followed by other producers. A price of \$3.50 base per 100 lb. for large structural and ship rivets is in the new list, but the leading producer in the district, as well as some of the others, still are accepting business as low as \$3.25 on this style of rivets. Prices and discounts are given on page 1000.

Sheets.—The market still tends upward, notably on galvanized sheets, several makers of which now are quoting them at 5.50c. base. The leading interest has

nothing to sell for delivery between now and July 1, and some of the larger independent producers also are well sold up for the second quarter. A number of the independents, however, are not taking contracts but are confining their bookings strictly to orders and their prices are based on daily costs. Shipments on contracts evidently are not supplying current requirements of all buyers because early delivery business is not hard to obtain at well up toward maximum quotations. A number of mills are suffering a loss of labor this week on account of the observance of the Easter holidays. Prices are given on page 1000.

Tubular Goods.—Conditions are very much the same as they have been for several weeks. There is no let up in the demand upon makers of steel pipe, all of whom could book enough business to take them out of the market for the remainder of the year, if they were so disposed. The endeavor of the mills is to maintain the stocks of their regular customers and they are fairly successful in so doing. All distributors, however, want a good deal more pipe than they are getting and an appearance of famine results from the refusal of the mills to take on the additional tonnages. There is no question that much of the extra demand is speculative, the kind of business the mills seek to avoid. There continues to be talk of an advance and one might be warranted on the basis of today's skelp prices, if non-integrated makers were working on material based on today's prices. It would be 90 days before most mills could benefit by an advance in standard pipe, as most of them are now committed that far ahead. Wrought iron pipe producing costs lately have risen considerably and the margin of profit has grown rather slim, but there are no indications of an immediate increase in prices. Makers of boiler tubes still are heavily committed and not able to give much attention to new business. A Southern company has just placed through the Hope Engineering & Supply Co., Mount Vernon, Ohio, with a Youngstown mill approximately 100 miles of 12½-in., 33-lb. plain end line pipe. This business amounts to about 7000 tons. Discounts are given on page 1000.

Steel Rails.—All makers of light rails are quoting 2.25c. base, but demand at that level is far from brisk. Makers are firm at this figure more because of cost than the size of the demand.

We quote 25 to 45-lb. sections, rolled from new steel, 2.25c. base; rolled from old rails, 2.25c. base; standard rails, \$43 per gross ton mill for Bessemer and open-hearth sections.

Track Fastenings.—Advance in spikes and track bolts recently announced by Chicago makers has found no response among makers here because Chicago prices still are lower, considering freight charges, than those current here. Good demand for small lots of spikes and bolts is reported. Prices are given on page 1000.

Hot-Rolled Flats.—Demand for narrow light stock continues extremely brisk and there has been a further stiffening in prices, current quotations ranging from 3.65c. to 3.75c. base. On hoops and bands of easily rolled gages and widths, the market remains at 3.30c. to 3.50c. base, and on hot-rolled strips from 3.25c. to 3.50c. base. Demand for all sizes is so heavy and mills are so well sold up that some of them now are willing to take on business only on a basis of price in effect at time of shipment. Prices are given on page 1000.

Cold-Rolled Strips.—Well filled order books and uncertainty about future costs have led to the pretty general withdrawal of the former minimum of 5c. base, Pittsburgh, on this material and 5.25c. now represents the going market. There is very little premium business.

Cold-Finished Steel Bars and Shafting.—The market is firm at 3c. base for carload lots and as high as 3.10c. base, has been done, for carloads in some instances where the specifications included numerous sizes. Makers are finding it a little difficult to keep up with their obligations because of the rather slow deliveries of hot-rolled bars and buyers who find themselves in need of supplies in a hurry occasionally are called upon to pay delivery premiums. Such cases, however, are rather infrequent. Ground shafting is unchanged at 3.40c. base, f.o.b. mill for carload lots.

Tin Plate.—Mills in a position to make early deliveries are generally asking and obtaining \$6 per base box, Pittsburgh, on production plates, and on stock items prices are not materially less. A number of food container manufacturers failed to estimate their requirements of the first half this year high enough and now are eagerly seeking supplementary supplies. Official quotations range from \$4.95 per base box, the Steel Corporation quotation, up to \$5.25 named by a number of independents. These quotations mean nothing since the various producers have orders sufficient to absorb probable production during the remainder of this half of the year, and they have not yet indicated the base for third quarter business.

Coke and Coal.—Fears that observance of the Easter holidays would bring about a sharp drop in production of coke in the Connellsville district appear to have been greatly magnified because the loss has been much less than usual, and with export business shut off by railroad embargoes, spot offerings have continued in excess of demand with attendant weakness in prices. The spot market on furnace coke this week is quotable at \$7 to \$7.25 per net ton at oven, but only a small part of recent business has been above \$7 and tonnages are readily available today at the latter price, while "distress" lots have been offered as low as \$6.50. Demand is extremely light because all of the furnaces now in blast and dependent upon Connellsville coke are covered by contracts and are getting ample supplies without recourse to the open market. Foundry coke also is slightly weaker, although a price of less than \$8.50 per net ton at oven refers to brands not strictly up to standard. Such coke is available as low as \$8, but on standard 72-hr. fuel the range is from \$8.50 to \$9. The coal market is so dull and depressed that there is a possibility of a number of mines suspending because it is unprofitable to operate them. Spot tonnages of mine-run steam coal are selling anywhere from \$1.85 to \$2.25 per net ton at mines, while the spot market on mine run gas and coking coal is from \$2.50 to \$2.75. Lump steam coal is priced at \$2.50 to \$2.75 and screened gas and coking coal at \$3. The contract market on mine-run gas and coking coal is \$3 and for prepared sizes \$3.25 to \$3.50.

Old Material.—This market developed a decidedly weaker tendency following recent sales of heavy melting steel at \$27 to \$27.50 but this tendency has been arrested by a fresh buying movement in the Youngstown district, where high enough prices have been paid to materially strengthen the ideas of local dealers. For a few days, dealers were able to cover short sales at substantial recessions from the prices paid on last sales to mills, this being explained by the fact that other dealers had some surplus over what they had sold and were anxious to move it. Important melters here are still out of the market on heavy melting steel and are refraining from making bids. It is doubtful, however, whether this grade can be bought for consumption much below the price of a week ago. We note a sale of 10,000 tons of borings and turnings for blast furnace use at \$22.50 and the market also is strong on machine shop turnings, particularly from the Detroit district.

We quote for delivery to consumers' mills in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton

Heavy melting steel.....	\$27.00 to \$27.50
No. 1 cast, cupola size.....	28.00 to 28.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntingdon, W. Va.; and Franklin, Pa.	26.00 to 26.50
Compressed sheet steel.....	25.50 to 26.00
Bundled sheet sides and ends....	24.00 to 24.50
Railroad knuckles and couplers....	29.00 to 29.50
Railroad coil and leaf springs....	29.00 to 29.50
Low phosphorus standard bloom and billet ends.....	32.50 to 33.00
Low phosphorus, plates and other grades.....	20.00 to 30.50
Railroad malleable.....	27.00 to 27.50
Locomotive axles, steel.....	36.00 to 37.00
Steel car axles.....	30.00 to 31.00
Cast iron wheels.....	27.50 to 28.00
Rolled steel wheels.....	29.00 to 29.50
Machine shop turnings.....	20.00 to 20.50
Heavy steel axle turnings.....	21.50 to 22.00
Short shoveling turnings.....	22.00 to 22.50
Cast iron borings.....	22.00 to 22.50
Heavy breakable cast.....	25.50 to 26.00
Stove plate.....	20.00 to 20.50
Sheet bar crop ends.....	29.00 to 30.00
No. 1 railroad wrought.....	22.00 to 23.00

Chicago

Demand for Steel Sustained—Pig Iron Is Less Active

CHICAGO, April 3.—Demand for steel is sustained and in its general features the market situation is unchanged. Although fabricating awards involve considerably less tonnage than lettings reported a week ago, it cannot yet be said that building activity is slackening. Building permits issued in Chicago in March were considerably heavier than in the month previous, and exceeded by 58 per cent the investment involved in permits granted in March, 1922. Automobile production continues at a high rate and railroad car buying fails to show any appreciable let up. Orders placed during the first quarter cover nearly 70,000 cars, or more than 38 per cent of the total for the entire year 1922.

With sustained activity in those branches of industry which have been the heaviest users of steel, the only change in demand lies in heavier inquiry from other sources. Agricultural implement manufacturers are steadily increasing their production and are pressing mills for proportionately larger tonnages of steel. Heavy rail buying also promises to develop again, notwithstanding the large orders placed last fall. Inquiries for standard sections now active in this market aggregate nearly 100,000 tons.

The price situation remains substantially unchanged, while the only new development in local steel works operations is the addition of a blast furnace at the South Chicago plant of the Illinois Steel Co. This stack goes in this week and increases the company's total of active furnaces to 22 out of 27 steel works units.

A number of fair-sized sales of charcoal are reported, including 250 tons to a Minnesota user.

Ferroalloys.—Quotations on ferromanganese appear to range from \$120 to \$125, seaboard, the latter price ruling on early deliveries. Fifty per cent ferrosilicon is available at from \$95 to \$100 delivered. The ferroalloys are quiet.

We quote 80 per cent ferromanganese, \$127.56 to \$132.56, delivered; 50 per cent ferrosilicon, \$95 to \$100, delivered; spiegeleisen, 18 to 22 per cent, \$48.58, delivered.

Pig Iron.—While the market is less active than a fortnight ago, melters are in a receptive mood and solicitation by sellers has resulted in the placing of a fair amount of tonnage. While some second quarter business continues to be placed, indicating that the melt of foundries has increased or that they failed to cover for their full requirements previously, interest is commencing to focus on third quarter iron. A number of good-sized orders for third quarter have been placed and new inquiries for that delivery are steadily making their appearance. A north central Illinois melter is understood to have closed for 1200 tons of malleable and 2800 tons of foundry for third quarter shipment. A Wisconsin user has placed 600 tons of malleable for that delivery. A Michigan plant is in the market for 1000 tons of foundry for the same period. Sales for second quarter include 750 tons of high manganese malleable to a northern Indiana railroad equipment manufacturer, 500 tons of foundry to a northern Illinois foundry equipment maker, and 200 tons of foundry to a Milwaukee melter. There has been heavy buying by eastern Michigan automobile plants within the past fortnight. One purchase involved 3200 tons of foundry, of which 600 tons was Chicago iron and the remainder from Buffalo and the Valley. Prices are firm, and in view of the active demand for spot iron, material for prompt delivery is moving at a premium, in some instances commanding as high as \$33, base, local furnace. Southern material can still be bought at \$27, base Birmingham, although a number of furnaces are still out of the market. Demand for silvery has not been particularly active in this district, but it is reported that recent sales of 7 to 10 per cent material in eastern Michigan aggregate several thousand tons. An Illinois

melter has closed for 140 tons of 6 per cent, part for spot and the remainder for third quarter shipment.

Quotations on Northern foundry high phosphorus malleable and basic irons are f.o.b. local furnace and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards or, when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	\$36.15 to \$38.15
Northern coke, No. 1, sil. 2.25 to 2.75	33.00 to 34.00
Northern coke, foundry No. 2, sil. 1.75 to 2.25	32.00 to 33.00
Malleable, not over 2.25 sil.	32.00 to 33.00
Basic	32.00 to 33.00
High phosphorus	32.00 to 33.00
Southern No. 2	33.01
Low phosph., sil. 1 to 2 per cent copper free	39.79
Silvery, sil. 8 per cent	44.29

Rails and Track Supplies.—Inquiries for fully 90,000 tons of rails are pending in this market. Delivery is wanted as soon as possible, but the best shipments available appear to be in the late third or fourth quarters. A total of approximately 25,000 kegs of spikes and bolts was booked by local mills last week and half of that amount was bought by one road. Demand for light rails continues to drag. Iron tie plates have advanced to \$57 a ton, mill.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled steel, 2.25c., f.o.b. makers' mills. Standard railroad spikes, 3.25c. mill; track bolts with square nuts, 4.25c. mill; iron tie plates, 2.85c. mill; steel tie plates, 2.60c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.80c. base and track bolts, 4.80c. base.

Plates.—Specifications and orders received by local mills continue to average about the same as heretofore this year and are still considerably in excess of shipments. Tank fabricators and car builders remain the heaviest buyers. One local mill is still out of the market while the leading producer is quoting 2.50c., Chicago, on material for shipment at mill's convenience. Buyers must turn to mills east of here for plates for specific delivery on which the market appears to range all the way from 2.50c. to 3c. base, Pittsburgh.

The mill quotation is 2.50c., Chicago for indefinite delivery and 2.84c. to 3.19c. delivered Chicago for specific shipment. Jobbers quote 3.30c. for plates out of stock.

Structural Material.—In view of the heavy forward commitments of fabricating shops and the scarcity of plain material, structural lettings and inquiries are falling off less than had been anticipated. In fact, new inquiries, involving 7750 tons, are heavier than a week ago. Awards, however, show a decline to 4662 tons. The leading local mill continues to take business for indefinite shipment at 2.50c., Chicago. Plain material for specific delivery cannot be bought from local sources and is bringing 2.50c. to 3c., Pittsburgh.

The mill quotation on plain material is 2.50c., Chicago for indefinite delivery. We quote 2.84c. to 3.19c. delivered Chicago for plain material for specific shipment. Jobbers quote 3.30c. for plain material out of warehouse.

Bars.—The pressure for soft steel bars is unrelaxed; in fact, the demand from implement makers is steadily increasing as their plant operations expand. The local market remains unchanged at 2.40c., Chicago, for material for indefinite shipment. Bars for definite delivery must be bought from outside sources at prices ranging from 2.50c. to 3c. base, Pittsburgh. Owing to the scarcity of steel, railroads and carbuilders as well as miscellaneous users are substituting bar iron so far as is practicable. Business in this commodity has been heavy and one mill, operating double turn, is booked from four to eight weeks ahead, while another bar iron producer, now on single turn, expects to put on two shifts shortly. Rail steel bar mills also have large bookings and have advanced prices to a minimum of 2.40c., mill.

Mill prices are: Mild steel bars, 2.40c., Chicago for indefinite delivery and 2.84c. to 3.19c. for specific delivery; common bar iron, 2.60c. to 2.75c., Chicago, rail steel, 2.40c., Chicago mill.

Jobbers quote 3.20c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting is 4.30c. for rounds and 4.80c. for flats, squares and hexagons.

Jobbers quote hard and medium deformed steel bars at 3c. base; hoops, 4.55c.; bands, 3.95c.

Wire Products.—The pressure for deliveries is undiminished and although mill operations are at 80 per cent of capacity or better, producers have not succeeded in cutting down their heavy forward obligations. Recent advances by the American Steel & Wire Co. were followed by further advances by independents, so that prices continue to be on a double basis. For mill prices, see finished iron and steel f.o.b. Pittsburgh, page 1000.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, \$3.75 per 100 lb., extra for black annealed wire, 15c. per 100 lb.; common wire nails, \$3.80 per 100 lb.; cement coated nails, \$3.25 per kg.

Cast Iron Pipe.—Prices have advanced to a minimum of \$49, Birmingham, for 6-in. and larger, with considerable business going at \$50 base. Shops are well booked ahead, some of them having the heaviest commitments since the war period. Current demand is largely for small lots, as most of the large cities have bought their season's requirements. Youngstown has awarded 1000 tons to James B. Clow & Sons. Chicago takes bids on 570 tons of 8-in. April 6. Mount Greenwood, Ill., takes bids for the second time on 714 tons the same day.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$61.20 to \$62.20; 6-in. and above, \$57.20 to \$58.20; class A and gas pipe, \$3 extra.

Bolts and Nuts.—Sellers are heavily booked, some of them being sold out for second quarter. An Eastern manufacturer has announced another advance of 10 per cent, but this has not been followed as yet by Chicago district makers.

Jobbers quote structural rivets, 4c.; boiler rivets, 4.10c.; machine bolts up to $\frac{1}{4}$ x 4 in., 45 and 5 per cent off; larger sizes, 45 and 5 off; carriage bolts up to $\frac{1}{2}$ x 6 in., 40 and 5 off; larger sizes, 40 and 5 off; hot pressed nuts, squares and hexagons, tapped, \$2.50 off; blank nuts, \$2.50 off; coach or lag screws, gimlet points, square heads, 50 and 5 per cent off.

Sheets.—Demand is sustained and prices are firm. Local mills remain out of the market.

Mill quotations are 3.75c. to 4c. for No. 28 black, 2.90c. to 3.25c. for No. 10 blue annealed and 4.75c. to 5.25c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote, f.o.b. Chicago, 4.15c. for blue annealed, 5c. for black and 6.10c. for galvanized.

Warehouse Prices.—A general advance in local warehouse quotations was announced today. Bars, plates, shapes, hoops and bands went up \$2 a ton, cold-rolled-steel bars and shafting \$4 a ton; galvanized sheets, \$5 a ton, and structural and boiler rivets, \$5 a ton. The new prices, together with revised discounts on bolts and nuts, will be found under the appropriate paragraphs. Among the specialties, diamond pattern floor plates advanced \$3 a ton to \$5.80 per 100 lb., light rails went up \$2 and now range from 2.65c. per lb. on 50-lb. sections and heavier to 3.03 $\frac{1}{2}$ c. on 8-lb. sections, while forging billets have gone up to \$3.40 per 100 lb for 0.15 to 0.25 carbon and \$3.45 for 0.35 to 0.45 carbon. The discount on wrought washers has been reduced to \$4 off, and on small rivets to 50 and 5 per cent off in keg lots and 45 and 5 off in less than keg lots. New extras on hoops have been announced. Hoops under 1 in. wide in all gages take an extra of 50c. over the base price, while No. 21 gage and lighter in all widths take a similar extra.

Reinforcing Bars.—A large volume of new work continues to develop, and dealers are exercising caution lest they take on heavier obligations than they will be able to discharge. The future supply of steel is an uncertain factor, as mills are heavily booked and are able to give their customers only a portion of the tonnage they desire. The warehouse price remains 3c., Chicago, but in view of another advance in local mill quotations, it is a question how long that figure will stand. Lettings include:

Power station, Grand Tower, Ill., 300 tons to Corrugated Bar Co.

Exchange building, Central Mfg. District, Chicago, 330 tons to Kalman Steel Co.

Murphy Storage & Transfer Co., warehouse, Minneapolis, Minn., 350 tons to Joseph T. Ryerson & Son.

Northwestern National Life Insurance Co., building, Minneapolis, Minn., 250 tons to Corrugated Bar Co.

Illinois Central Railroad, subway, Markham Yards, Chicago, 400 tons to Corrugated Bar Co.

Schuster department store, Milwaukee, Wis., 300 tons to Concrete Engineering Co.

Missouri highway work, 200 tons to Kalman Steel Co.

Riverside pumping station, Milwaukee, Wis., 150 tons to Concrete Steel Co.

Eli Lilly office building, Minneapolis, Minn., 150 tons to Corrugated Bar Co.

Catholic high school, Evansville, Ind., 125 tons to Truscon Steel Co.

Lincoln Park Manor Apartments, Chicago, 125 tons to American System of Reinforcing.

Kessenerich department store, Madison, Wis., 100 tons to Corrugated Bar Co.

Wrigley Building annex, Chicago, 100 tons to Concrete Steel Co.

Pere Marquette Railroad, terminal, Detroit, Mich., 100 tons to Truscon Steel Co.

Dempsey Garage, Chicago, 100 tons to Barton Spiderweb System Co.

Standard Oil Co., improvements at Whiting, Ind., 100 tons (rail steel) to Inland Steel Co.

Pending business includes:

Gibbs-Inman Co. garage, Louisville, Ky., 400 tons.

Elgin, Joliet & Eastern round-house, Joliet, Ill., 100 tons. International Harvester Co., Chicago, warehouse at Cleveland, 175 tons.

Old Material.—Prices continue to sag, although in view of heavy current consumption of scrap, the weakness in the market is regarded as temporary. The softening of prices has had the effect of causing holdings to be liquidated and at the same time consumers have done what they could to encourage the downward trend. It is notable, however, that offerings of yard stocks are growing less liberal, indicating either that supplies are smaller than supposed or that holders are recovering their confidence. Likewise consumers, though hesitant, have shown a disposition to buy at concessions, indicating a pressing need for material to sustain their high rate of operations. There has been no further consumptive buying of heavy melting and allied grades during the week, but purchases of low phosphorous steel and iron mill scrap have been liberal. Demand for cast and malleable grades is less active. The recent decline in prices has extended to railroad material which, until recently, was frequently bought by dealers at higher prices than they were able at the moment to obtain from consumers. Current railroad offerings are heavy and comprise the Chicago & Northwestern, 7500 tons, including 1600 tons of cast iron car wheels; the Pennsylvania, Southwestern Region, 5000 tons; the Pennsylvania, Northwestern Region, 3000 tons, and the Big Four and Erie, blank lists.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton

Iron rails	\$27.00 to \$27.50
Cast iron car wheels.....	28.50 to 29.00
Relaying rails, 56 and 60 lb.....	28.50 to 29.50
Relaying rails, 65 lb. and heavier	32.00 to 35.00
Rolled or forged steel car wheels	29.00 to 29.50
Rails for rolling.....	24.00 to 24.50
Steel rails, less than 3 ft.....	26.50 to 27.00
Heavy melting steel.....	23.50 to 24.00
Frogs, switches and guards cut apart	23.00 to 23.50
Shoveling steel	22.50 to 23.00
Drop forge flashings	19.50 to 20.00
Hydraulic compressed sheets	20.50 to 21.00
Axle turnings	21.00 to 21.50

Per Net Ton

Iron angle and splice bars	26.50 to 27.00
Steel angle bars	22.50 to 23.00
Iron arch bars and transoms	26.50 to 27.00
Iron car axles	30.50 to 31.00
Steel car axles	24.50 to 25.00
No. 1 busheling	20.00 to 20.50
No. 2 busheling	14.50 to 15.00
Cut forge	21.00 to 21.50
Pipes and flues	17.00 to 17.50
No. 1 railroad wrought	20.50 to 21.00
No. 2 railroad wrought	21.00 to 21.50
Steel knuckles and couplers	25.75 to 26.25
Coil springs	26.50 to 27.00
No. 1 machinery cast	26.50 to 27.00
No. 1 railroad cast	25.00 to 25.50
No. 1 agricultural cast	24.50 to 25.00
Low phos. punchings	22.50 to 23.00
Locomotive tires, smooth	23.50 to 24.00
Machining shop turnings	14.50 to 15.00
Cast borings	16.00 to 16.50
Short shoveling turnings	16.00 to 16.50
Stove plate	22.00 to 22.50
Grate bars	21.50 to 22.00
Brake shoes	22.50 to 23.00
Railroad malleable	25.50 to 26.00
Agricultural malleable	24.50 to 25.00

New York

Embargo Against Coke Shipments to Philadelphia for Export—Lull in Pig Iron—Foreign Ore Bought

NEW YORK, April 3.—Owing to the congestion of coke cars at Philadelphia, where 2000 cars loaded with coke for export have accumulated and six vessels are awaiting cargoes while eight are on their way to that port, an embargo against further shipment of coke to Philadelphia has been declared. Demand for this fuel for Germany, Belgium and France continues active, but owing to the Philadelphia embargo and inability to arrange for immediate shipment from other ports, very little business is being done. It is probable that Mobile will be used as a port of shipment from the South to Europe. Vessel tonnage is somewhat easier and \$5.50 can be done without any trouble on shipments to Antwerp. Coke prices are slightly lower and foundry is quoted at \$8 to \$8.50, while \$7.25 is the usual quotation on furnace grades.

Pig Iron.—A lull has come in buying. The buying for third quarter, which started about three weeks ago, has virtually ceased and the tonnage being placed for second quarter is not large. Buyers are quietly awaiting developments and sellers regard the lull with favor because it is generally conceded that prices have been high enough and there was danger in a too rapid advance. There has been little change in prices, but there are some indications that recent quotations for second quarter can be shaded for third quarter, at least at Buffalo, where \$29.50 has been done for third quarter. A machinery company which has been inquiring for from 500 to 1200 tons of foundry and malleable has bought about 600 tons for second quarter. The General Electric Co. is in the market for 900 tons of high silicon iron for second quarter. A sale of 2000 tons of basic at \$30, eastern Pennsylvania furnace, has been made to a company which originally inquired for 5000 tons.

We quote delivered in the New York district as follows, having added to furnace prices \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 1 fdy., sil. 2.75 to 3.25	\$34.27 to \$35.27
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	33.27 to 34.27
East. Pa. No. 2 fdy., sil. 1.75 to 2.25	32.27 to 33.27
Buffalo, sil. 1.75 to 2.25	34.41 to 34.91
No. 2X Virginia, sil. 2.25 to 2.75	33.94 to 34.94
No. 2 Virginia, sil. 1.75 to 2.25	33.44 to 34.44

Iron Ore.—A furnace which is about to blow in has contracted for about 5000 tons of Swedish ore at 10c. per unit, c.i.f., or about 11.50c., delivered, which compares with about 14c. delivered for a similar grade of Lake Superior ore. Prices have not been formally announced by Eastern producers, who find the market slow, as furnaces are not disposed to contract at the present time. Some figuring has been done on a basis of 10.50c. per unit for New Jersey ores.

Ferroalloys.—Demand for ferromanganese is very light and confined to carload and small lots, mostly for prompt shipment at \$125, seaboard or furnace. Several sales are reported. Requests for shipments on contract are numerous and insistent. All but one or two British producers are out of the market for any delivery this year at any price. There have been sales of a few lots for third quarter shipment and some for the last four months of the year. There are practically no offerings of spiegeleisen because the leading producer is out of the market for the rest of the year, despite the fact that its second furnace was blown in late in March. Only a small amount of spiegeleisen is available for importation and most of this has been sold. Some has brought as high as \$50, seaboard. The 50 per cent ferrosilicon market is as strong and tight as ever with early delivery material bringing from \$95 and upward, delivered. Deliveries on contract are urgently pressed.

Cast Iron Pipe.—Demand continues unabated and prices strong. Added to the numerous municipal and private purchases are a number of inquiries from various foreign markets. Little export business will probably be done, however, as makers are so well filled with business that in some instances they are unable to bid on domestic tenders. The contract of the City of New York, which involves about 10,000 tons of flex-joint water pipe, is unofficially reported to have been awarded to the low bidder, the American-Chapman Derrick & Wrecking Co., and the pipe will be provided by the United States Cast Iron Pipe & Foundry Co. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$58.50; 4-in. and 5-in., \$63; 3-in., \$68.80, with \$4 additional for Class A and gas pipe. While there is still a fair tonnage of soil pipe moving, the recent decision of the court that the tax exemption law on dwellings is unconstitutional has been reflected in a decided curtailment of buying by jobbers, who are now placing a few orders, mostly for 60 days delivery. We quote discounts on soil pipe of both Southern and Northern makers, delivered New York, as follows: 2 to 6-in. standard, 13 to 15% per cent off list; heavy, 23 to 25% per cent off list.

Warehouse Business.—Buying is heavy on practically all products and prices very firm. Black and galvanized sheets are now generally on a basis of 4.90c. and 5.90c. per lb., the price schedule of most of the warehouses in this district, and small lots are bringing up to 5.50c. and 6.50c. per lb. base. While bars, shapes and plates are thus far unchanged, an increase is momentarily expected and warehouses handling spring steel, tire steel and toe calk steel are seriously considering advancing the price for shipment out of stock in view of the higher mill quotations now being received. As high as 3.54c. per lb., New York, has been quoted by mills on spring steel and on toe calk recent mill quotations have been 3.70c. and slightly higher, New York. While an increase in other products may not affect the sheet market, the base price on both black and galvanized will probably be raised by the majority of warehouses. The brass and copper market is active and a recent increase of about 1/2c. per lb. on most products is noted. Sellers of wrought iron and steel pipe report the market firm with practically all sellers from stock adhering strictly to the schedule of discounts now in effect. We quote prices on page 1020.

Finished Iron and Steel.—The large volume of structural steel work let in the New York district in the first three months of 1923 is indicated by figures compiled by L. F. Caproni, of the Hay Foundry & Iron Works, who estimates that the total of all buildings is 126,000 tons. This does not include any such work as subways, elevated railroads, etc., but applies only to buildings. It compares with 370,000 tons taken for the same purposes during all of last year. A good demand for structural steel continues, despite the difficulties that builders and fabricators are having in getting sufficient steel. There is sufficient fabricating shop capacity still unengaged if the steel were available. New inquiries for cars totaling 7000 have also appeared and 2000 more cars have been let within the week. The New York Central Railroad opened bids on Monday for not more than 5000 tons of plates, shapes and bars and smaller lots of wheels, tires, axles, billets and sheets for third quarter requirements. On the plates, shapes and bars bids of 2.35c. and upward on bars and 2.45c. and upward on plates and shapes were submitted. The demand for steel keeps up at a fairly good rate, but the tonnages actually purchased are small. Some of the larger contract purchasers have come into the market for carload lots for quick shipment and, like the smaller consumers, have been obliged to pay premium prices for such delivery. An instance is a carload of universal plates shipped to Wisconsin at 2.75c., f.o.b. Eastern mill. For shipment to consumers in this district and for reasonably early delivery, plates, shapes and bars are quoted from 2.50c. to 2.75c., Pittsburgh, the higher figure ruling in numerous transactions of small size. Most of the Eastern plate

nills are quoting 2.65c., Pittsburgh. Eastern structural mills able to make fairly early shipment quote 2.75c., mill.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.69c. to 2.84c.; plates and structural shapes, 2.79c. to 2.84c.; bar iron, 2.84c.

Old Material.—The market is steadier this week, prices evidently having stabilized at from \$1.50 to \$2 per ton under the high price recently reached. No. 1 heavy melting steel is now rather generally quoted at \$24 per ton, eastern Pennsylvania. For delivery to Bethlehem, \$24 per ton is being paid on railroad quality. The recent decline in prices is reported by some dealers to have brought out a fair tonnage of steel in this district that was being held for higher prices until the break came. Stove plate is unchanged, with New Jersey foundries paying good prices, warranting a buying price New York of \$19 to \$19.50 per ton. Machine shop turnings delivered to Phoenixville are quoted at \$21 per ton, and \$17.50 per ton, delivered Bethlehem, is still being paid for mixed borings and turnings. While No. 1 heavy melting steel is quotable at \$20 to \$21.50 per ton this week and railroad quality at \$21 to \$21.50 per ton, a decrease of \$1 per ton from the price last week, other grades are substantially unchanged.

Buying prices per gross ton, New York, follow:

Heavy melting steel, yard.....	\$20.00 to \$20.50
Steel rails, short lengths, or equivalent	21.00 to 21.50
Rails for rolling.....	22.00 to 23.00
Relaying rails, nominal.....	29.00 to 30.00
Steel car axles.....	25.00 to 26.00
Iron car axles.....	29.00 to 30.00
No. 1 railroad wrought.....	22.00 to 23.00
Wrought iron track.....	22.00 to 22.50
Forge fire.....	15.50 to 16.00
No. 1 yard wrought, long.....	19.50 to 20.00
Cast borings (clean).....	15.50 to 16.00
Machine-shop turnings.....	17.00 to 17.50
Mixed borings and turnings.....	14.50 to 15.00
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	16.75 to 17.25
Stove plate.....	19.00 to 19.50
Locomotive grate bars.....	20.00 to 21.00
Malleable cast (railroad).....	21.50 to 22.00
Cast-iron car wheels.....	22.00 to 23.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$25.00 to \$26.00
No. 1 heavy cast (columns, building materials, etc.), cupola size.....	24.00 to 25.00
No. 1 heavy cast, not cupola size.....	22.00 to 23.00
No. 2 cast (radiators, cast boilers, etc.).....	20.00 to 21.00

Detroit Scrap Market

DETROIT, April 3.—Melting schedules for April show no decline from March, which was a record month in this district. This applies to producers of automotive castings, radiator and stove and furnace manufacturers. Several automobile companies have reported a shortage of malleables. Scrap prices give no indication of softening and dealers are interested in all offerings of old material. Prices are practically the same as those quoted a week ago.

The following prices are quoted on a gross ton basis f.o.b. cars producers' yards, excepting stove plate, automobile and No. 1 machinery cast, which are quoted on a net ton basis:

Heavy melting steel.....	\$23.00 to \$24.50
Shoveling steel.....	23.00 to 24.50
No. 1 machinery cast.....	27.00 to 28.50
Cast borings.....	17.25 to 18.25
Automobile cast scrap.....	29.00 to 32.00
Stove plate.....	20.00 to 22.00
Hydraulic compressed.....	19.00 to 20.00
Turnings.....	17.00 to 18.00

The Associated Industries of Massachusetts, which comprises in its membership nearly 1600 manufacturers of the State, will establish an industrial center in the new Park Square Building, Boston, which is the largest office building in New England. The association has taken the entire ninth floor, giving it a space 75 x 600 ft. It is proposed to rent space to member manufacturers for the exhibit of their products and to maintain as complete a collection as possible of their catalogs and price lists.

Boston

Further Shrinkage in Pig Iron Sales Noted—Scrap Prices Weak

BOSTON, April 3.—Sales of pig iron shrunk further the past week, falling below 10,000 tons. Aside from a stiffening in some eastern Pennsylvania furnace views, values are unchanged. Western Pennsylvania, Buffalo and Northern irons sold more freely than others. The withdrawal of a furnace from the market accounts for the inactivity of Alabama irons. Buffalo No. 2X, second quarter, sold at \$35.41, delivered, and No. 1X at \$36.41. No. 2X, third quarter, sold at \$35.41 and \$35.91 and No. 1X at \$36.41 and \$37.41. In competition, Northern No. 2X, prompt, sold at \$34.41 and second quarter at \$34.91, while No. 1X, second quarter, fetched \$35.42. Western Pennsylvania No. 2X, second quarter, sold at prices equal to Buffalo. Virginia, second quarter, No. 2X, sold at \$34.92 and third quarter at \$35.42 and \$35.92. Alabama appears pegged at \$27, furnace base. Foundries have not taken third quarter iron as freely as expected. Where a spread in second and third quarter prices exists, the tendency is to buy for June delivery on expectation shipment will be made later. Sales the past week include foreign, silicon 2.50 plus, regardless of brand, at \$35.75 to \$36.75 on dock Boston duty paid; 8 to 9 per cent silvery at \$38.50 furnace; and charcoal at \$33.50, furnace base. A manufacturer of heating apparatus is about to close on about 2000 tons No. 2 plain third quarter iron.

We quote delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama:

East. Penn., sil. 2.25 to 2.75.....	\$35.15 to \$37.15
East. Penn., sil. 1.75 to 2.25.....	34.65 to 36.65
Buffalo, sil. 2.25 to 2.75.....	35.41 to 36.41
Buffalo, sil. 1.75 to 2.25.....	34.91 to 35.91
Virginia, sil. 2.25 to 2.75.....	34.42 to 35.92
Virginia, sil. 1.75 to 2.25.....	33.92 to 35.42
Alabama, sil. 2.25 to 2.75.....	37.10
Alabama, sil. 1.75 to 2.25.....	36.60

Iron Importations.—Two lots of Belgian iron, one 2795 tons and the other 505 tons, or a total of 3300 tons, were received at this port during the week ending March 31. During the previous week, corrected figures show 3400 tons of Scotch, 2075 tons of Belgian, 248 tons of English iron as well as 200 tons from Halifax, or a grand total of 5923 tons landed at Boston. The total receipts of foreign iron for March were 15,379 tons, made up as follows: 5390 tons of Scotch, 8022 tons of Belgian, 744 tons of English, 1023 tons of German and 200 tons from Halifax.

Warehouse Business.—Warehouse quotations on hoop steel have advanced from \$5.05 and \$5.55 per 100 lb. to \$5.55 to \$6.05; open-hearth spring steel has advanced \$6 to \$7 a ton, cold-rolled \$4 and sheets \$5. Iron and steel prices otherwise are unchanged. The movement out of warehouses is holding its own. Barbed wire is about 10 per cent higher; wire fencing is 40 and 10 per cent discount, as compared with 47 per cent heretofore; anvils are 19c. a lb., whereas heretofore they were 18c.; structural rivets previously \$4.60 per keg base, are now \$4.85. Some distributors hold to \$3.90 per keg base on wire nails, while others quote \$4. Everybody has advanced cut nails about 10 per cent.

Jobbers quote: Soft steel bars, \$3.36 1/2 per 100 lb.; flats, \$4.15; concrete bars, \$3.51 1/2 to \$3.64; structural, angles, channels and beams, \$3.46 1/2; tire steel, \$4.80 to \$5.15; open-hearth spring steel, \$8.00 to \$10.00; crucible spring steel, \$12; bands, \$4.55 to \$5.05; hoop steel, \$5.55 to \$6.05; cold-rolled steel, \$4.50 to \$5.00; toe cak steel, \$6.15; refined iron, \$3.36 1/2 per 100 lb.; best refined iron, \$4.75; Wayne iron, \$5.50; Norway iron, \$6.60 to \$7.10; steel plates, \$3.46 1/2 to \$3.70; No. 10 blue annealed sheets, \$4.61 1/2 a 100 lb.; No. 28 black sheets, \$5.65; No. 28 galvanized, \$6.65.

Coke.—New England producers of by-product foundry coke have announced that April prices would be the same as those prevailing in March. The New England Coal & Coke Co., therefore, is doing business on a \$16 per ton, delivered, basis within the \$3.10 freight zone and the Providence Gas Co., Providence, R. I.

on a \$15 basis. These concerns have not opened their books for second half contracts and indications now are they will not do so before April 15. The New England Coal & Coke Co., due to a relaxation in the demand for domestic fuel, has put two additional oven batteries on foundry coke, making a total of six batteries devoted to this fuel. While the New England transportation situation is easier than it was March 1, the producers of coke are still experiencing difficulty in getting sufficient cars to fill even a small percentage of the demands made upon them. Nothing new has developed in the Connellsville foundry coke situation as far as New England is concerned.

Old Material.—The withdrawal of the most active steel mill from the market, and a widespread presumption on the part of holders that other consumers will take similar action, checked the advance in New England and brought about a healthy reaction in old material prices. Dealers holding contracts with consumers covered freely, in some cases at prices \$2 a ton lower than existing heretofore. One house alone took 4000 tons, mostly heavy melting steel, turnings and pipe. The market closes the week unsettled, prices being uncertain and subject to immediate acceptance, with continued free offerings. Contrasted with a week ago, average old material prices are perhaps \$1 a ton lower. Foundries remain active buyers of machinery cast, consequently the market is relatively steady. New England consumers of other material have pulled out of the market, and quotations on stove plate, railroad malleable and car wheels therefore are largely nominal.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	\$28.00 to \$28.50
No. 2 machinery cast	26.00 to 26.50
Stove plate	20.50 to 21.00
Railroad malleable	27.00 to 28.00
Street car wheels	25.50 to 26.00

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$19.00 to \$19.50
No. 1 railroad wrought	21.50 to 22.00
No. 1 yard wrought	19.50 to 21.00
Wrought pipe (1 in. in diam., over 2 ft. long)	16.00 to 16.50
Machine shop turnings	15.00 to 15.50
Cast iron borings, rolling mill.....	16.00 to 16.50
Cast iron borings, chemical.....	19.00 to 19.50
Blast furnace borings and turnings	14.00 to 14.75
Forged scrap and bundled skeleton	16.50 to 17.00
Shafting	23.00 to 24.00
Street car axles	23.00 to 24.00
Rails for rerolling	22.00 to 22.50

Cleveland

Ore Selling Freely—Pig Iron Market Quiet, with No Local Product for Sale

CLEVELAND, April 3.—A large tonnage of merchant ore has been sold since prices for the season were named ten days ago and the market is still fairly active. Some of the sellers have already disposed of the bulk of their better grades of ore. While some of the merchant furnaces are buying ore to cover their requirements up to next spring, a large number are following a rather conservative policy in making their purchases and some are buying for their requirements only up to about September. Some consumers do not yet know what grades of pig iron they will be making and are deferring their ore purchases on that account. Sales of manganeseiferous ores have been fairly heavy owing to the recent tendency of steel makers to demand pig iron running higher in manganese. A number of sales of manganeseiferous ores have been made in the East but no sales of standard ores are reported to Eastern consumers. The Ford Motor Co. has placed 210,000 tons of ore with three firms. This with ore from the company's own mine and some that has been carried over will cover the Ford requirements for the season. Early predictions were that the ore movement this season would be 55,000,000 tons but some estimates are now being made that it will reach close to 60,000,000 tons. Reports from upper lake ports are to the effect that ice conditions will not permit the opening of the season of navigation before about May 1.

Pig Iron.—The pig iron market has quieted down in the Central West, although considerable activity is reported in the Buffalo district, particularly for eastern shipment. Consumers generally are covered for the second quarter and while considerable iron has been sold for the third quarter, many foundries, including some large consumers, are disposed to defer buying for that delivery. This is particularly true of jobbing foundries which have not placed much business on their books for that delivery. No activity is reported in steel making grades. The market is firm, but prices show no change except in the Valley district, where there has been an advance of 50c. on foundry iron, now quoted at \$31.50 to \$32. Lake furnaces are still on a \$31.50 to \$32 basis, except Buffalo where \$30 is the prevailing price. Almost no local iron is available, although we note the sale of two car lots at \$33. We also note the sale of 500 tons of Buffalo iron to a Cleveland consumer. With a \$2.65 freight rate, the delivered price was \$32.65. With local producers out of the market, Cleveland prices are based on Buffalo and Valley prices, with the freight added. One producer during the week sold 9000 tons of foundry and malleable iron, including one 3000-ton lot, all for the third quarter. The American Radiator Co. has been in the market for a round tonnage and its purchases include about 7500 tons for its Detroit plant. Inquiries include 2000 tons for the Uniontown, Pa., plant of the Richmond Radiator Co. and 2000 for the International Motor Truck Co., New Brunswick, N. J. Southern iron is quiet and firm. The Hanna Furnace Co. blew in its Fannie furnace and the McKinney Steel Co. its Genesee furnace, Charlotte, N. Y., April 1 and the latter company will blow in its second Josephine stack this week.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron includes a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace	\$31.00
Northern No. 2 fdy., sil. 1.75 to 2.25	\$32.65 to 33.27
Southern fdy., sil. 1.75 to 2.25	33.00
Malleable	32.65 to 33.27
Ohio silvery, 8 per cent	42.52
Standard low phosph., Valley furnace	35.00

Bolts, Nuts and Rivets.—Some of the bolt and nut manufacturers have made a further price advance of approximately 10 per cent and some others expect to join in the advance, but one large local manufacturer announces that it will adhere to prices that have been ruling recently and at which most large consumers and jobbers have placed contracts for the second quarter. No advance has been made on semi-finished hexagon nuts. Rivet specifications continue heavy. Local prices are unchanged at 2.25c. for structural and 3.35c. for boiler rivets and 65 per cent off for small rivets.

Sheets.—The demand for sheets is not so active as it has been. With present prices many consumers are deferring purchases until they need the material. Some mills are declining to sell for delivery beyond April because they have purchased sheet bars subject to prices prevailing each month and do not know what their raw material will cost. Galvanized sheets are still to be had at 5c. Blue annealed sheets are scarce and commonly quoted at 3.25c. Most mills are asking 4c. for black sheets.

Reinforcing Bars.—New work is coming out in good volume. The Bourne-Fuller Co. has taken 150 tons for the Bedell Building, Cleveland. Inquiries include a building for the Westinghouse Electric & Mfg. Co., Cleveland, 250 tons; county bridge, Painesville, Ohio, 185 tons; highways in Kentucky, 200 tons; Fair Grounds Exposition Building, Charleston, W. Va., 150 tons. Rail steel reinforcing bars are quoted 2.35c. to 2.50c.

Warehouse Business.—Warehouse prices on sheets have been advanced \$3 a ton on black and galvanized and \$6 a ton on blue annealed by a leading local jobber. However, the advance on blue annealed brings the price up to that quoted several weeks by some other distributors.

Finished Iron and Steel.—Some of the automobile companies that have refrained from placing orders for any material for delivery after the second quarter have

come into the market for their last half requirements in carbon and alloy steel bars and drop forgings and one large producer is planning to make reservations for this trade for that delivery without naming prices. The automobile business is holding up so well that some of the companies report that orders now on their books will carry them well into the third quarter. In addition to the domestic business the export demand for automobiles is growing and good volume of inquiry for steel bars, plates and structural material is coming from manufacturers in various industries, who are covered with contracts for steel that will last them several months but who wish to make additional commitments for material with mills that cannot make deliveries on the additional orders inside of six or eight months. Implement manufacturers report an increase in orders and that they are now getting considerable foreign inquiry. In the building field there is a noticeable slackening of activities which is attributed to delayed deliveries of steel as much as to the higher prices. However, most fabricators have all the work they can handle for several months. Building projects indefinitely postponed include the Babes' and Children's Hospital, Cleveland, requiring 1000 tons and the Onondaga Litholite Co. building, Syracuse, N. Y., 250 tons. The supply of steel available for early shipment is very scarce and prices show little change. Steel bars range from 2.35c to 2.75c and to 3c. for forging quality. Plates and structural material are quoted at a minimum of 2.45c, but for early delivery the minimum quotation of plates by both local and Eastern mills is 2.75c. Eastern mills are selling structural shapes in this market at 2.85c. for prompt shipment. Hot-rolled strip steel is firm at 3.30c. to 3.50c. for wide sizes and 3.50c. to 4c. for narrow material. Some mills are quoting cold-rolled strip steel at 5.25c. to 5.50c.

Jobbers quote steel bars, 3.21c.; plates and structural shapes, 3.31c.; No. 9 galvanized wire, 3.70c.; No. 9 annealed wire, 3.25c.; No. 28 black sheets, 4.75c.; No. 28 galvanized sheets, 5.90c.; No. 10 blue annealed sheets, 3.80c. to 3.91c.; cold-rolled rounds, 3.90c.; flats, squares and hexagons, 4.40c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 4.01c.; narrower than 1 in. or lighter than No. 20 gage, 4.51c.

Coke.—Foundry coke is in fair demand and firm at \$8.75 to \$9 for standard Connellsville makes.

Semi-Finished Steel.—Inquiries continue to come out for sheet bars for the second quarter and offers of higher than \$45 are reported, but a local producer has no available tonnage.

Old Material.—After signs of weakening for a few days the market has again stiffened and prices on most grades have advanced. Two Youngstown mills came to the market during the week and are reported to have purchased 15,000 to 20,000 tons of steel making scrap, and the renewal of the upward trend is attributed to this activity. Sales are reported for Youngstown delivery at \$27 for heavy milling steel, \$25 and higher for compressed steel and \$22 for machine shop turnings. A local mill purchased a quantity of machine shop turnings from a producer at \$21, delivered. The New York Central and Big Four railroads will close Wednesday on blank scrap lists.

We quote per gross ton, f.o.b. Cleveland, as follows:

Heavy melting steel.....	\$25.25 to \$25.75
Rails for rolling	28.50 to 29.00
Rails under 3 ft.....	28.00 to 28.25
Iron rails	23.00 to 24.00
Low phosphorus melting	28.00 to 28.50
Cast borings	20.00 to 20.50
Machine shop turnings	19.75 to 20.00
Mixed borings and short turnings	19.75 to 20.00
Compressed steel	24.00 to 24.25
Railroad wrought	23.00 to 23.25
Railroad malleable	28.50 to 29.00
Light bundle sheet stampings	20.00 to 20.50
No. 1 cast	29.00 to 30.00
No. 1 busheling	20.00 to 20.25
Drop forge flashings over 10 in..	22.00 to 22.50
Railroad grate bars	23.00 to 24.00
Stove plate	23.00 to 24.00
Pipes and flues	22.00 to 22.50

St. Louis

Quiet Week in Pig Iron—Old Material Prices Decline

ST. LOUIS, April 3.—Outside of an inquiry for 5300 tons of various grades for third quarter from a northern Illinois melter, the principal inquiries of the week were for carload lots for spot shipments of high silicon iron to round out tonnages. Melters are demanding quick shipments against contracts. The St. Louis Coke & Chemical Co. sold several thousand tons for third quarter shipment. A Southern maker who has been selling considerable iron for water and rail shipment, reports a let-up in buying, most consumers being well supplied for their present needs. The market is still strong, and unchanged at \$32, Chicago, for Northern iron and \$27 to \$28, Birmingham, for Southern make.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.28 from Birmingham (rail and water), \$5.17 from Birmingham, all rail, and 81 cents average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25.....	\$34.16
Northern malleable, sil. 1.75 to 2.25.....	34.16
Basic	34.16
Southern fdy., sil. 1.75 to 2.25.....	\$32.17 to 33.17

Finished Iron and Steel.—A less insistent demand from buyers of finished iron and steel is reported. Jobbers and consumers seem to realize that the mills are more than six months behind in deliveries on the average, and they are cautious about placing orders that far ahead on the present basis. The principal railroad inquiry is from the Pennsylvania lines west of Pittsburgh for 19,500 pairs of 130-lb. angle bars and 9600 pairs of 100-lb. angle bars. The same road has asked for prices on its requirements of nuts for second quarter. The Missouri-Illinois Railroad (Bonne Terre, Mo.) wants 200 tons of 90-lb. rails. A Texas car builder has asked for prices on 500 tons of shapes, plates and bars. The Federal Reserve Bank Building at St. Louis will require 3000 tons of structural steel and 300 tons of reinforcing bars.

For stock out of warehouse we quote: Soft steel bars, 3.25c. per lb.; iron bars, 3.25c.; structural shapes, 3.35c.; tank plates, 3.35c.; No. 10 blue annealed sheets, 4.25c.; No. 28 black sheets, cold rolled, one pass, 5c.; cold drawn rounds, shafting and screw stock, 4.25c.; structural rivets, 3.90c. per 100 lb.; boiler rivets, 4c.; tank rivets, $\frac{1}{4}$ in. and smaller, 55 per cent off list; machine bolts, large, 50 per cent; smaller, 50 per cent; carriage bolts, large, 45 per cent; small, 45 per cent; lag screws, 55 per cent; hot pressed nuts, square or hexagon blank, \$2.75; and tapped, \$2.75 off list.

Coke.—The demand for domestic coke has fallen off considerably with the coming of warmer weather. The demand for foundry coke is increasing, as the melt in the district is increasing.

Old Material.—The old material market has suffered its first set back in months, and prices are from 50c. to 75c. a ton lower. This weakness is due to the fact that country dealers are offering more material in this market. Nor are consumers buying, and it is expected they will do no buying of consequence for the next month.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

	Per Gross Ton
Iron rails	\$22.50 to \$23.00
Rails for rolling	24.00 to 24.50
Steel rails, less than 3 ft.....	24.00 to 24.50
Relaying rails, standard section	37.50 to 39.00
Cast iron car wheels	27.50 to 28.00
Heavy melting steel	22.50 to 23.00
Heavy shoveling steel.....	22.25 to 22.75
Frogs, switches and guards cut apart	22.50 to 23.00
	Per Net Ton
Heavy axles and tire turnings.....	16.00 to 16.50
Steel angle bars	21.00 to 21.50
Iron car axles	27.50 to 28.50
Steel car axles	24.00 to 24.50
Wrought iron bars and transoms	24.50 to 25.00
No. 1 railroad wrought	20.75 to 21.25
No. 2 railroad wrought	20.75 to 21.25
Railroad springs	24.00 to 24.50
Steel couplers and knuckles	24.00 to 24.50
Cast iron borings	14.50 to 15.00
No. 1 busheling	18.00 to 18.50
No. 1 railroad cast	24.50 to 25.00
No. 1 machinery cast	24.50 to 25.00
Railroad malleable	23.50 to 24.00
Machine shop turnings	13.50 to 14.00

Cincinnati

Very Little Buying of Pig Iron—Foundry Coke Market Strong

CINCINNATI, April 3.—Buying of pig iron slackened noticeably toward the end of the week, and indications today pointed to a dull week's business, there being little inquiry outstanding. Prices from all districts remain unchanged from last week, and with a quiet market it is not expected that any changes will develop. The situation in the South is undoubtedly tighter as regards the supply of iron, but in southern Ohio production will be increased shortly by about 1000 tons per day by the addition of Hamilton, Wellston and Belmont stacks, which are scheduled to operate during the second quarter. Two or three Virginia furnaces are also scheduled to resume within the next few days. Sales during the week included 1500 tons of Southern iron to an Indiana melter at \$27 for third quarter, 1400 to a western Indiana melter for second quarter and 400 to an Indianapolis melter for second and third quarter. A Cleveland district melter also took 1000 tons of Southern for third quarter at \$27, base. A Chattanooga melter bought 1000 tons of southern Ohio malleable for third quarter at \$31, and several hundred ton sales of both foundry and malleable grades were made by southern Ohio furnaces at \$31 to \$31.50. We note a sale of 500 tons of silvery to a Michigan melter for third quarter at the schedule. The only inquiry of importance is from a Kentucky sanitary manufacturer for 1000 tons of Northern iron for second quarter.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base)	\$31.05
Southern coke, sil. 2.25 to 2.75 (No. 2 soft)	31.55
Ohio silvery, 8 per cent	41.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2)	33.27
Basic Northern	32.27
Malleable	33.27

Structural Material.—The only new inquiry of consequence is the new plant for the Pittsburgh Plate Glass Co., Zanesville, Ohio, 800 tons. Several projects are pending, including the Alms Hotel, Cincinnati, office building for the State of Ohio at Columbus, and tank work for the city of Dayton. On 1000 tons of steel for lock gates for dams Nos. 34, 46 and 38, Ohio River, the National Bridge Co. was low bidder on part of the work, and a Milwaukee fabricator on the remainder. It is reported the Big Four Railroad will shortly call for bids for the erection of a bridge at Louisville, Ky., across the Ohio River.

Reinforcing Bars.—Several fair-sized jobs were awarded. The Pollak Steel Co. will furnish 500 tons for the Temple Bar Building, Cincinnati, and Bourne-Fuller & Co. will furnish 150 tons for a warehouse at Dayton. For the Vernon Manor Hotel, Cincinnati, 1000 tons of bars has been contracted for. New projects include a dormitory for Miami University, 250 tons, and a store building for the Benzinger Outfitting Co., Louisville, Ky., 350 tons.

Warehouse Business.—As the demand for quick shipment of materials becomes more insistent, local jobbers report a greater demand for their materials, and carload orders for shipment to distant points are becoming common. Wire products have been advanced \$2 per ton, and it is expected, following similar advances made by mills, heavier products will be advanced from \$2 to \$4 per ton this week.

Cincinnati jobbers quote: Iron and steel bars, 3.40c.; reinforcing bars, 3.50c.; hoops, 4.45c.; bands, 4.15c.; shapes, 3.50c.; plates, 3/4-in. and heavier 3.50c., lighter 3.75 1/2c.; cold-rolled rounds, 4.20c.; cold-rolled flats, squares and hexagons, 4.70c.; No. 10 blue annealed sheets, 4.15c.; No. 28 black sheets, 5c.; No. 28 galvanized sheets, 6c.; No. 9 annealed wire, \$3.40 per 100 lb.; common wire nails, \$3.40 per keg base.

Tool Steel.—With increasing activity in the metal working industries, orders for tool steel show a corresponding improvement, and consumers are more inclined to cover further ahead, rather than to depend on warehouse shipment. Prices are strong, at 75c. to 85c. for 18 per cent tungsten high speed steel.

Finished Materials.—The volume of orders continues large, and while second quarter capacity is

pretty well contracted for, it is possible, by the payment of premiums, to secure pretty fair deliveries of finished materials. Eastern Pennsylvania mills have booked fair orders from this district for plates, at 2.80c., mill, during the past week, and instances are reported where 2.75c. has been done on shapes and plates for four to five weeks deliveries. Sheets are in very heavy demand, and one mill, which is quoting a three weeks delivery, is reported to have booked orders on the basis of 3.75c. for blue annealed, 4.50c. for black, and 5.25c. for galvanized. These prices are, of course, exceptional, but have been done on small tonnages. A northern Ohio mill is reported to have advanced prices on automobile body sheets to 7c., with delivery guaranteed in three to four weeks. There is no sign of a let-up in the demand for wire products; in fact, consumers are more insistent in regard to placing orders before further advances are made. An inquiry for 200 tons of light rails appeared in the market this week, on which 2.25c. has been quoted. The Big Four is inquiring for 20,000 pairs of angle bars, and will take bids this week on its requirements of bars, shapes, plates and miscellaneous steel for second quarter.

Coke.—The market for foundry coke is strong and March shipments were the highest in the history of some companies. Furnace coke is also fairly active, and some domestic sales, including one for 10,000 tons, are reported. Prices show little change from last week, the Connellsville market being quoted at \$7.50 for furnace, \$8.50 for foundry, New River foundry at \$13 for May shipment, Wise County furnace at \$7.50 and foundry at \$8.75.

Old Material.—While the local market is quiet, strength apparently has developed in outside markets, and dealers are paying higher prices for material for outside points. The present lull in buying is regarded as a temporary one, and dealers believe that heavy purchases will be made shortly. Steel grades are at least 50c. a ton higher, and machinery cast has been advanced \$1.

We quote dealers' buying prices, f.o.b. cars Cincinnati:

Per Gross Ton
Bundled sheets
Iron rails
Relaying rails, 50 lb. and up
Rails for rolling
Heavy melting steel
Steel rails for melting
Car wheels

Per Net Ton
No. 1 railroad wrought
Cast borings
Steel turnings
Railroad cast
No. 1 machinery cast
Burnt scrap
Iron axles
Locomotive tires (smooth inside)
Pipes and flues

Birmingham

Strong but Quiet Market in Pig Iron—Coke Production Record Made

BIRMINGHAM, ALA., April 3.—At close of March, the two largest merchant iron interests were out of the market, as were also two smaller ones, while the leading interest was in no condition to serve the merchant trade on account of pressure for basic pig iron for its own purposes. A conservative estimate of March sales places the total at 300,000 tons. One two-furnace maker booked 55,000 tons. The largest makers booked more than they made. Denial was made by all makers of sales above \$27 or under that price. Spot iron is extremely hard to get. Consumers are taking other than analyses especially preferred in order to be accommodated. Total business of the last week in March was about 20,000 tons. It was the first so-called quiet week in two months, the buying movement having had no real intermission since it began just prior to Dec. 1, 1922. Oxmoor furnace of the Tennessee company blew in March 29 on foundry, but a Bessemer stack on foundry was shifted to ferromanganese, so that total supply of merchant iron will not have been increased.

The Sloss-Sheffield Steel & Iron Co. expects to blow in a sixth stack around April 15. Sales of last week include several 1000-ton lots in Ohio and St. Louis territory. Charcoal iron has been active at \$34. One Alabama charcoal stack is active, 10 are making basic iron, 16 foundry iron and one ferromanganese. The Tennessee company in blowing in Oxmoor reached the limit of productive capacity with 12 stacks going, two on foundry. Stocks have been reduced. While makers say they do not wish an advance, it seems to be pressing on them. One combined pipe and iron interest has been buying additional outside iron, tonnage previously ordered not being promptly delivered.

We quote per gross ton f.o.b. Birmingham district furnaces as follows:

Foundry, silicon 1.75 to 2.25.....	\$27.00
Basic	26.00
Charcoal, warm blast	34.00

Finishing Mills.—Bars have gone up to 2.60c. f.o.b. Birmingham. The Tennessee company shipped 6000 tons of rails and other steel products to Japan via Mobile last week. All steel mills are striving to produce and ship 100 per cent. The nail demand is far in excess of supply.

Cast Iron Pipe.—Each week adds to the swamped condition of pressure pipe shops. One maker has 125 cars at Mobile waiting on ship to take it to Pacific Coast, which has taken two record cargoes in the past two weeks. The nominal base is \$48, but there is no real base on small tonnages and small sizes. Sanitary pipe, which is at \$75, is reported as headed to another \$5 advance. Universal pipe make is 30 to 45 days behind in deliveries.

Coal and Coke.—The all-time week's record for Alabama coal production was broken the week ending March 3 with 402,000 tons. Furnace activity is responsible. Spot coke is bringing \$9 and \$10 and is hard to get.

Old Material.—Cast scrap is bringing more than quoted prices for small lots, but the advancing tendency seems to have stopped pending the stability of pig iron prices. We quote per gross ton f.o.b. Birmingham district yards as follows:

We quote per gross ton f.o.b. Birmingham district yards as follows:

Old steel rails	\$18.00 to \$20.00
No. 1 steel	16.00 to 18.00
No. 1 cast	21.00 to 23.00
Car wheels	21.00 to 23.00
Tramcar wheels	20.00 to 22.00
Stove plate	18.00 to 19.00
Cast iron borings	12.00 to 13.00
Machine shop turnings	12.00 to 13.00

Furnace Property to Be Sold

BIRMINGHAM, ALA., April 3.—Advertisements carried in Birmingham newspapers give notice of the sale under decree of the district court for the southern district of New York of the properties of the Sheffield Iron Corporation at the furnace plant in Sheffield, Ala., at noon April 30. The sale is subject to a mortgage of \$585,000 held by the Bankers' Trust Co., as trustee, and issued in 1917 to secure 15-year 6 per cent gold bonds to that amount. The properties embrace three blast furnaces (two obsolete) at Sheffield, ore properties at Russellville, Ala., and in Tennessee and other holdings. The one serviceable stack at Sheffield was operated during the war, but has been idle since. These furnaces have been oftener idle than in operation for many years. The sale is the outcome of a bankruptcy proceeding in which the Harbison-Walker Refractories Co. was complainant. Bidders must deposit a certified check for \$10,000.

Amalgamated Association Convention

YOUNGSTOWN, April 3.—The forty-eighth annual convention of the Amalgamated Association of Iron, Steel and Tin Workers opened today at Warren with several hundred delegates attending. Suggestions with respect to the wage scale for the calendar year beginning July 1 will be discussed.

Another important consideration will be the status of Amalgamated Association employees at the Brier Hill works of the Youngstown Sheet & Tube Co. The latter company has always operated under the open shop policy and will undoubtedly continue.

Buffalo

Pig Iron Buying Not So Brisk—Concession of 50 Cents by Some Sellers

BUFFALO, April 3.—Sales of pig iron in the closing week of March were not as brisk as in earlier periods in that month, but the whole situation is strong. Silicon 1.75 to 2.25 is quoted at \$29.50 by one interest and another has met the competition; while several others are quoting \$30 for the same grade. The producers asking the lower price are not distinguishing between second and third quarter delivery. Others are asking premiums for April shipment. A furnace which has booked considerable tonnage in March has about one-half its third quarter tonnage sold. The \$29.50 price has been made only in Buffalo and vicinity business; outside the immediate selling field, the market is stronger. About 20,000 tons has been sold. The general run of inquiry does not contain any extraordinary tonnages; several offices have a few 1000-ton lots inquired for. Third quarter inquiry is livelier and from a wider circle. The interest shown by a number of third quarter inquirers has not developed to the buying stage. Furnace operation will be amplified through the addition of one stack of the Rogers-Brown Co., which is expected to go in before May 1, the McKinney furnace at Rochester, and immediate operations at the Tonawanda Iron Co. furnaces just acquired by the subsidiary of the American Radiator Co.

We quote f.o.b. per gross ton Buffalo as follows, the higher price being for early shipment:

No. 1 foundry, 2.75 to 3.25 sil..	\$30.50 to \$31.00
No. 2X foundry, 2.25 to 2.75 sil..	30.00 to 30.50
No. 2 plain, 1.75 to 2.25 sil..	29.50 to 30.00
Basic	30.00
Malleable	30.00
Lake Superior charcoal	36.75

Finished Iron and Steel.—No abatement of demand is noticed nor is delivery any less insistent as the second quarter opens. Mills and their branches are uniformly offered about four times more business than they can accept. New prices on bars, shapes and plates are out and the minimum bar price now is 2.35c. In some cases price announcements are merely gestures because such interests have no material to sell for second quarter delivery and have not opened their books for third. Automobile and reinforcing steel makers are insistent. Prospective opening of construction of buildings and good roads has brightened the demand for reinforcing material. The majority of sellers are quoting shapes and plates at 2.45c. and one Buffalo mill has established a minimum bar price of 2.50c. Eastern mills are quoting as high as 2.75c. on shapes and plates in this territory. Delivery now ranges from 60 days to eight months. An advance of 10 per cent on bolt prices is announced. Warehouse products are sought in constantly growing measure and warehouse prices are bullish. Structural demand at warehouses is especially brisk and galvanized sheets are beginning to move in greater quantity.

We quote warehouse prices, Buffalo, as follows:

Structural shapes, 3.50c.; plates, 3.50c.; soft steel bars, 3.40c.; hoops, 4.50c.; bands, 4.20c.; blue annealed sheets, No. 10 gage, 4.20c.; galvanized steel sheets, No. 28 gage, 6.10c.; black sheets, No. 28 gage, 5.10c.; cold rolled round shafting, 4.25c.

Old Material.—Demand for heavy melting steel in several quarters appears to have been satisfied and the price has weakened. Purchases have not been large but have been sufficient to meet immediate needs. The same weakening applies to hydraulic compressed and No. 1 busheling. Demand for turnings and borings developed a flurry with an inquiry put out by a furnace interest for 10,000 tons per month. Several tonnages were bought at \$22.50.

Heavy melting steel	\$24.50 to \$25.00
Low phosph., 0.04 and under	28.00 to 29.00
No. 1 railroad wrought	22.00 to 23.00
Car wheels	26.00 to 27.00
Machine shop turnings	18.00 to 19.00
Cast iron borings	19.00 to 20.00
No. 1 busheling	22.50 to 23.00
Heavy steel turnings	23.00 to 23.50
Stove plate	23.00 to 24.00
Grate bars	23.00 to 24.00
Bundled sheet stampings	18.00 to 19.00
No. 1 machinery cast	26.00 to 27.00
Hydraulic compressed	22.50 to 23.00
Railroad malleable	27.50 to 28.50

Philadelphia

Market Is Quieter and Smaller Volume of Business Is Being Done

PHILADELPHIA, April 3.—It goes without saying that the large volume of buying of steel and pig iron during the first quarter of the year could not continue indefinitely, but the falling off in demand is particularly accentuated by a comparison with the period of intense activity just passed through. In steel the situation is at least partly explained by the fact that there are few mills willing to take on any more tonnage. Those that are sold up through the first half are content to let matters rest and are discouraging third quarter buying, though some of them are making reservations for regular customers for that period when it is insisted upon. In pig iron there is plenty of iron available for third quarter, but the demand has flattened out to some extent and current business is mostly made up of small lots for early shipment. There have been no important price changes during the week except that some of the Eastern mills are asking still higher premiums for prompt shipments of plates and shapes.

Pig Iron.—The pig iron market is steady as to prices, but the volume of buying, as compared with recent weeks, is not large. One furnace company which put its prices up to a basis of \$32, furnace, for No. 2 plain has receded from that position and now quotes \$31, which is also the quotation of other furnaces, with one exception, for prompt delivery or third quarter. The one interest quoting \$32 is a large steel company which virtually has no standard iron to offer. A few weeks ago there was an insistent demand for third quarter contracts, but the enthusiasm of buyers has waned to some extent and it is the opinion of some in the trade that to force sales it would be necessary to make slight price concessions, which furnaces are not willing to do. The coke market is slightly easier. The Virginia market continues to gain in strength despite the fact that two or three additional furnaces in that district will go into blast soon. One Virginian furnace quotes \$28.50, base, for shipment this month, and \$29.50, base, for third quarter. Other furnaces there quote \$29. Foreign iron continues to come in, last week's receipts being 10,132 tons, of which 5325 tons came from England, 1674 from Wales, 3033 from Nova Scotia and 100 from Germany. An inquiry from Italy for 30,000 tons of basic iron has awakened very little interest as Eastern furnaces do not care to quote.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76 cents to \$1.64 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sll.	\$32.14 to \$32.76
East. Pa. No. 2X, 2.25 to 2.75 sll.	33.14 to 33.76
East. Pa. No. 1X 34.14 to 35.26	
Virginia No. 2 plain, 1.75 to 2.25 sll.	33.67 to 34.17
Virginia No. 2X, 2.25 to 2.75 sll.	34.67 to 35.17
Basic delivered eastern Pa. 30.25 to 30.75	
Gray forge 30.00 to 31.00	
Malleable 33.14 to 33.64	
Standard low phos. (f.o.b. furnace) nominal 35.00	
Copper bearing low phos. (f.o.b. furnace) 32.00	

Foreign Pig Iron

All prices f.o.b. cars Philadelphia, duty paid.	
Continental foundry, 1.80 to 2.50 sll.	\$31.00
Continental foundry, 2.50 to 3 sll.	32.00
Low phos. copper free, guar. not over 0.035 per cent phos.	35.36
Continental, phos. 1.50; sll. 2 to 3.	31.50

Ore.—Iron ore receipts from abroad last week included 541 tons from Germany and 6506 tons from Sweden. Ten tons of manganese ore came from Germany.

Ferroalloys.—Ferromanganese is unchanged in price, \$125 being quoted for prompt material, \$120 for the remainder of first half and \$115 for third quarter, either seaboard or furnace. A small sale of imported spiegeleisen was made at \$53, seaboard.

Semi-Finished Steel.—It would now be difficult to buy open-hearth billets at \$45, Pittsburgh. Probably

\$47.50 would be quoted. Forging billets are quoted at \$52 or \$53, Pittsburgh.

Plates.—One Eastern plate mill quotes 2.85c., Pittsburgh, for May and June and 2.75c. for April shipments. Other mills, if they sell at all, are content with 2.75c., Pittsburgh, for Eastern shipment or 2.75c., mill, for Western shipment for the earliest delivery they can give, which varies from three or four weeks to two months. Most of the transactions at the high prices are for small lots. Two large interests quote 2.45c., Pittsburgh, but have no early deliveries to offer.

Structural Material.—One Eastern structural mill now quotes 2.85c., mill, for Western shipment and 2.75c., Pittsburgh, for Eastern shipment, but its sales are confined to small lots. Large structural projects are now being figured on a basis of 2.50c. steel.

Bars.—It is difficult to buy bars, but consumers are fairly well covered on contracts and there is no great amount of pressure for quick shipments, probably because consumers have already learned that the mills are not in a position to take such business. Prices range from 2.35c. to 2.50c., Pittsburgh. Bar iron continues to be quoted at 2.50c., Pittsburgh.

Sheets.—Consumers are having difficulty in buying at any price, but nothing less than 3.75c., Pittsburgh, for black and 5c. for galvanized is heard. The leading Eastern producer of blue annealed sheets now quotes 3.25c., Pittsburgh.

Warehouse Business.—Local jobbers have advanced No. 10 blue annealed sheets to 4.25c. per lb.; No. 28 black to 5.15c. and No. 28 galvanized to 6.25c. Round cold-rolled steel is now 4.35c. and squares and hexagons, 4.85c. Norway iron has been advanced to 7c. per lb. Other prices are unchanged. We quote for local delivery as follows:

Soft steel bars and small shapes, 3.30c.; iron bars (except bands), 3.30c.; round edge iron, 3.50c.; round edge steel, iron finish, 1 1/4 x 1/2 in., 3.50c.; round edge steel planished, 4.30c.; tank steel plates, 1/4 in. and heavier, 3.40c.; tank steel plates, 1/8 in., 3.65c.; blue annealed steel sheets, No. 10 gage, 4.25c.; black sheets, No. 28 gage, 5.15c.; galvanized sheets, No. 28 gage, 6.25c.; square twisted and deformed steel bars, 3.40c.; structural shapes, 3.40c.; diamond pattern plates, 1/4-in., 5.20c.; 5/8-in., 5.40c.; spring steel, 4.80c.; round cold-rolled steel, 4.35c.; squares and hexagons, cold-rolled steel, 4.85c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.50c.; narrower than 1 in., all gages, 5c.; steel bands, No. 12 gage to 1/2-in., inclusive, 4.25c.; rails, 3.30c.; tool steel, 8.50c.; Norway iron, 7c.

Old Material.—During the past week there has been marked weakness in scrap prices, but today the market had slightly recovered. There was less pressure from scrap dealers to sell and some of the mills had again come into the market for supplies. No. 1 heavy melting steel is now quoted at \$24.50 to \$25.50, a decline in the minimum price of \$1.50 within two weeks. Other grades reduced are No. 1 yard wrought, No. 1 forge fire, bundled sheets for steel works, blast furnace borings and turnings, turnings for rolling mills, cast borings, No. 1 cast, stove plate, railroad malleable and pipe.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$24.50 to \$25.50
Scrap rails	24.50 to 25.50
Steel rails for rolling.....	27.00 to 28.00
No. 1 low phos. heavy 0.04 and under	30.00 to 32.00
Cast iron car wheels	27.00 to 28.00
No. 1 railroad wrought	28.00 to 29.00
No. 1 yard wrought	26.00 to 27.00
No. 1 forge fire	21.50 to 22.00
Bundled sheets (for steel works)	20.00 to 21.00
No. 1 busheling	24.00 to 25.00
Mixed borings and turnings for blast furnace use	18.00 to 19.00
Machine shop turnings (for steel works use)	21.00 to 22.00
Machine shop turnings (for rolling mill use)	22.00 to 23.00
Heavy axle turnings (or equivalent)	22.50 to 23.50
Cast borings (for steel works and rolling mills)	21.00 to 22.00
Cast borings (for chemical plants)	25.00 to 26.00
No. 1 cast	27.00 to 29.00
Heavy breakable cast (for steel plants)	25.00 to 26.00
Railroad grate bars	22.00 to 23.00
Stove plate (for steel plant use)	21.00 to 22.00
Railroad malleable	24.00 to 26.00
Wrought iron and soft steel pipes and tubes (new specifications)	21.00 to 22.00
Shafting	28.00 to 30.00
Steel axles	28.00 to 30.00

San Francisco

Imports of Pig Iron Heavy and Little Business in Domestic Grades

SAN FRANCISCO, March 24.—Importers of pig iron report an unusually good measure of activity during the past three weeks with prices strong and on the upgrade and orders increasing in volume. Estimates as to the tonnage sold during the last month vary greatly and importers are reticent about giving out definite figures. The total, however, is considerably greater than for many months. It was practically all English and Scotch iron, none having come from Europe recently, except such cargoes as happened to be afloat prior to the occupation of the Ruhr valley by French troops. Dealers have been buying ahead for the last three months because of expected further advances in prices over the exceptionally high figures ruling since the first of the year. So they are well supplied for the present and immediate future. Prices at present range from \$38.50 to \$39.50 per long ton, ex ship San Francisco, depending upon the amount of tonnage purchased. It is reported in trade circles that some sales have been made at slightly higher figures, but wholesalers will neither confirm nor deny the statement. Some idea of the volume of business may be gained from the fact that the imports at this port for February totaled 26,188 tons, while for January the total was only 4556 tons and the average for the past three years is less than 8000 tons per month. In domestic iron, there is comparative quiet, not because it could not be used by rail freights are high and there is not much sold on this coast. The sales of domestic have been about 1200 tons during the last month, but the high figures on foreign iron are expected to increase the purchases of domestic for the next few months. The demand for iron is growing steadily, chiefly because of increased activity in manufacturing industries. Prices on domestic iron range around \$27 to \$28, Birmingham base.

Coke.—Operations in the imported product continue rather moderate in volume with prices high and full figures firmly sustained. Prices two months ago were \$17.50 to \$18.50 ex ship, while now sales are readily effected at \$23.50 and some dealers say \$24, ex ship. It has been practically impossible to buy any foreign coke during the last two months, most of the production finding ready sale in Europe and at present there is little expectation for additional supplies in excess of about 16,500 tons on the way. While considerable is still in the hands of importers, they are selling very sparingly and prices will undoubtedly go higher, because they say the English blast furnaces have been caught short and cargoes are practically unobtainable. The imports of coke at this port during February were 5048 tons, about 500 tons less than for January.

Finished Iron and Steel.—Notwithstanding exceptionally high prices, the demand is steady and extensive. Private work, for the present, is light but municipal work is of liberal proportions and on the increase. About 30 of the communities in this State which have recently voted bond issues contemplate public improvements which call for steel construction. Labor troubles in the San Francisco bay region have greatly retarded building construction, but now that the American plan, with its freedom from union domination, is coming into almost general use, the increased number of building permits indicates the dawn of a new era and an enlarged volume of construction activity.

Old Material.—There is some little business with the prices held about steady, one or two round lots recently changing hands at \$15 per ton for heavy melting steel. The buying for the present is wholly for domestic purposes. The demand for export is practically at a standstill, except for a few small lots shipped to Japan. This trade is very spasmodic in character and insufficient in volume to have any bearing on the local market. While there may be some diversity of opinion as to prices as between individual traders and representative handlers in large quantities, the current

price for the best grade of heavy melting steel is about \$14.50 to \$15 per gross ton delivered to consuming mills. Borings and turnings are about \$6 to \$7 per ton and mixed country scrap brings about \$13 to \$13.50 per ton. Machinery cast iron, No. 1 grade, is being readily purchased at from \$25 to \$26 per net ton delivered to the foundries.

British Iron and Steel Market

Labor Unsettled—Firm Tone to Quotations—Clyde Launches Eleven Ships—French Furnaces Starting Up Again (By Cable)

LONDON, ENGLAND, April 3.

Iron and steel markets are quiet, owing to the [Easter] holidays, most works remaining closed for several days, but the tendency is decidedly firm. Labor is unsettled.

Clyde shipbuilding output for March was 11 vessels launched, of 33,663 gross register tons.

Tin plate minimum price has been advanced to 24s. (\$5.62) basis f.o.b., but most makers are asking higher figures.

Continental business is stagnant. France offered blooms at £8 5s. (\$38.61) f.o.b. and billets at £8 10s. (\$39.78) f.o.b.

In France, de Wendel & Co. has relighted one furnace at Moyeuvre. Redange-Dilling has restarted the banked furnace at Redange. The Société Horme et Buire has relighted its furnace at Pouzin.

In the Saar, the coal dispute continues. The Neunkircher Eisenwerk and Halberger works are closed completely. The Acieries Reunies de Burbach-Eich-Dudelange, at Burbach, is expected to close shortly. The Société Anonyme des Forges et Usines de Dillingen has one furnace blowing (out of five) and Volklingen two.

In Lorraine, the miners' strike continues. In Belgium coke has become very scarce. In Luxemburg continued receipts of British fuel and the expectation of larger supplies from Belgium have been enabling the plants to avoid further closures.

In Germany, the Ruhr works are producing on almost a normal scale, but stocks are accumulating. Heinrich Hütte at Dalhausen has blown out some furnaces.

We quote per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.68 per £1, as follows:

Durham coke, delivered	f2	2½s. to f2	5m.	\$9.95 to \$10.53
Cleveland No. 1 foundry	6	10+		30.42
Cleveland No. 3 foundry	6	5		29.25
Cleveland No. 4 foundry	6	2		29.25
Cleveland No. 4 forge..	6	2½		28.67
Cleveland basic	6	2½		28.67
East Coast mixed.....	6	5	to 6 10	29.25 to 30.42
Ferromanganese	16	0		74.58
Ferromanganese*	17	0		79.56
Rails, 60 lb. and up... .	10	0	to 10 10	46.80 to 49.14
Billets	9	10	to 10 0	44.46 to 46.80
Sheet and tin plate bars, Welsh	10	0		46.80
Tin plates, base box...	1	5	to 1 6	5.85 to 6.08
				C. per Lb.
Ship plates	10	5	to 10 15	2.14 to 2.25
Boiler plates	12	10	to 13 0	2.61 to 2.72
Tees	11	0	to 11 10	2.39 to 2.40
Channels	10	5	to 10 15	2.14 to 2.25
Beams	10	0	to 10 10	2.09 to 2.19
Round bars, ½ to 3 in.	11	0	to 11 10	2.36 to 2.40
Galvanized sheets, 24 g.	19	10		4.07
Black sheets, 24 gage..	14	10		3.03
Black sheets, Japanese specifications	15	5		3.19
Steel hoops	11	0	& 13 0*	2.30 & 2.72*
Cold rolled steel strip, 20 g.	23	0		4.81
Cotton ties, Indian speci- fications	15	0		3.13

*Export price. †Nominal.

Prices Finished Iron and Steel f.o.b. Pittsburgh

For additional prices, see page 1001

Plates

Sheared, tank quality, base, per lb..... 2.45c. to 2.75c.

Structural Material

Beams, channels, etc..... 2.45c. to 2.60c.

Sheet piling..... 2.60c. to 2.75c.

Iron and Steel Bars

Soft steel bars, base, per lb..... 2.35c. to 2.75c.

Refined iron bars, base, per lb..... 3.00c.

Hot-Rolled Flats

Hoops, ordinary gages and widths, base, per lb..... 3.30c. to 3.50c.

Hoops, light gage, under 1 in. wide..... 3.50c. to 3.75c.

Bands, base, per lb..... 3.30c. to 3.50c.

Strips, base, per lb..... 3.25c. to 3.50c.

Cold-Finished Steels

Bars and shafting, base, per lb..... 3.00c. to 3.10c.

Strips, base, per lb..... 5.25c.

Wire Products

Nails, base, per keg..... \$2.90 to \$3.10

Galvanized nails, 1 in. and over..... \$2.25 over base

Bright plain wire, base, No. 9 gage per 100 lb..... \$2.65 to \$3.00

Annealed fence wire, base, per 100 lb..... 2.80 to 3.20

Spring wire, base, per 100 lb..... 3.60

Galvanized wire, No. 9, base, per 100 lb..... 3.25 to 3.60

Galvanized barbed wire, base, per 100 lb..... 3.70 to 3.90

Galvanized staples, base, per keg..... 3.70 to 3.90

Painted barbed wire, base, per 100 lb..... 3.35 to 3.45

Polished staples, base, per keg..... 3.35 to 3.45

Cement coated nails, base, per count keg..... 2.60 to 2.75

Woven fence, carloads (to jobbers) 67½ to 66½ per cent off list

Woven fence, carloads (to retailers) 65 to 64 per cent off list

Bolts and Nuts

Machine bolts, small, rolled threads..... 50 per cent off list

Machine bolts, small, cut threads..... 40 and 10 per cent off list

Machine bolts, larger and longer..... 40 and 10 per cent off list

Carriage bolts, ¼ x 6 in.:

Smaller and shorter, rolled threads..... 45 per cent off list

Cut threads..... 40 per cent off list

Longer and larger sizes..... 40 per cent off list

Lag bolts..... 50 per cent off list

Flow bolts, Nos. 1, 2 and 3 heads..... 40 and 10 per cent off list

Other style heads..... 20 per cent extra

Machine bolts, c.p.c. and t. nuts, ¾ x 4 in.:

Smaller and shorter..... 35 and 5 per cent off list

Larger and longer sizes..... 35 and 5 per cent off list

Hot pressed square or hex. nuts, blank..... \$3.00 off list

Hot pressed nuts, tapped..... 2.75 off list

C.p.c. and t. square or hex. nuts, blank..... 3.00 off list

C.p.c. and t. square or hex. nuts, tapped..... 2.75 off list

Cap and Set Screws

Milled square and hex. head cap screws,

70 and 10 per cent off list

Milled set screws..... 70 and 10 per cent off list

Upset cap screws..... 75 per cent off list

Upset set screws..... 75 per cent off list

Rivets

Large structural and ship rivets, base, per

100 lb..... \$3.25 to \$3.50

Large boiler rivets, base, per 100 lb..... 3.35 to 3.60

Small rivets..... 60 and 10 to 60 and 5 off list

Track Equipment

Spikes, ½ in. and larger, base, per 100 lb..... \$3.15

Spikes, ½ in., ⅓ in. and ⅔ in., per 100 lb..... 3.75

Spikes, ⅓ in. 3.75

Spikes, boat and barge, base, per 100 lb..... 3.50

Track bolts, ½ in. and larger, base, per 100 lb..... 4.00 to 4.50

Track bolts, ⅓ in. and ⅔ in., base, per 100 lb..... 5.00 to 5.50

Tie plates, per 100 lb..... 2.65 to 2.70

Angle bars, base, per 100 lb..... 2.75

Welded Pipe

Butt Weld

Inches	Steel	Black	Galv.	Inches	Black	Galv.
16	47	21 ½	14 to ¾	+11	+39	
14 to ¾	53	27 ½	12	22	2	
¾	58	44 ½	¾	28	11	
½	62	50 ½	1 to 1 ½	30	13	
1 to 3	64	52 ½				

2	Lap Weld	2	23	7	
2 ½ to 6	57	45 ½	2 ½	26	11
7 to 8	61	49 ½	3 to 6	28	18
9 to 12	57	44 ½	7 to 12	26	11

Butt Weld, extra strong, plain ends

16 to ¾	43	26 ½	1 ½ to ¾	+19	+54
¾ to ½	49	32	1 ½	21	7
½	55	44 ½	1	28	12
¾	60	49 ½	1 to 1 ½	30	14
1 to 1 ½	62	51 ½			
2 to 3	63	52			

Lap Weld, extra strong, plain ends

2	55	44 ½	2	23	9
2 ½ to 4	59	48 ½	2 ½ to 4	29	15
4 to 6	58	47 ½	4 to 6	28	14
7 to 8	54	41 ½	7 to 8	21	7
9 to 12	48	35 ½	9 to 12	16	2

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent, on black and 1 ½ points, with a supplementary discount of 5 per cent, on galvanized.

Boiler Tubes

Lap Welded Steel	Charcoal Iron
1 ½ in.	21 ½
2 to 2 ½ in.	33
2 ½ to 3 in.	44
3 ¼ to 18 in.	49

To large buyers of steel tubes a supplementary discount of 5 per cent is allowed.

Standard Commercial Seamless Boiler Tubes

Discounts on cold-drawn tubes in carload lots, f.o.b. Pittsburgh, follow:

1 in.	55	2 ½ and 2 ¾ in.	35
1 ¼ and 1 ½ in.	47	3 in.	39
1 ½ in.	31	3 ¼ to 4 in.	44
2 and 2 ¼ in.	31	4 ¼ in. and 5 in.	36

Hot Rolled

3 in.	41	3 ¼ to 4 in.	46
Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extras for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be sold at mechanical tube list and discount. Intermediate sizes and gages not listed take price of net larger outside diameter and heavier gage.			
Standard Mechanical Tubing			
Carbon under 0.30, base.....		85 per cent off list	
Carbon 0.30 to 0.40, base.....		83 per cent off list	
Plus usual differentials and extras for cutting.			
Seamless Locomotive and Superheater Tubes			
Cents per Ft.		Cents per Ft.	
2-in. O.D. 12 gage..... 14		2 ½-in. O.D. 10 gage..... 19	
2-in. O.D. 11 gage..... 15		3-in. O.D. 7 gage..... 34	
2 ½-in. O.D. 10 gage..... 16		1 ½-in. O.D. 9 gage..... 13 ¾	
2 ½-in. O.D. 12 gage..... 16		5 ¾-in. O.D. 9 gage..... 53	
2 ½-in. O.D. 11 gage..... 17		5 ½-in. O.D. 9 gage..... 55	

Tin Plate

Standard cokes, per base box..... \$4.95 to \$6.00

Terne Plate

(Per package, 20 x 28 in.)	
8-lb. coating, per 100 lb. base..... \$ 9.90	20-lb. coating I. C. \$13.80
12-lb. coating I. C. 10.20	25-lb. coating I. C. 15.19
15-lb. coating I. C. 11.60	30-lb. coating I. C. 16.25
17.70	35-lb. coating I. C. 17.25
	40-lb. coating I. C. 18.25

Sheets

Blue Annealed

Nos. 9 and 10 (base), per lb..... 2.65c. to 3.25c.

Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb..... 3.50c. to 4.00c.

Automobile Sheets

Regular auto body sheets, base (22 gage), per lb. 5.00c. to 7.00c.

Galvanized

No. 28 (base), per lb..... 5.00c. to 5.50c.

Long Ternes

No. 28 gage (base), 8-lb. coating, per lb..... 4.95c.

Tin-Mill Black Plate

No. 28 (base), per lb..... 3.50c. to 4.00c.

Manufacturers have pamphlets, which can be had upon application, giving price differentials for gage and extras for length, width, shearing, etc.

Freight Rates

All rail freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia, domestic..... \$0.32	Buffalo	\$0.26
Philadelphia, export..... 0.235	Cleveland	0.21
Baltimore, domestic..... 0.31	Cleveland, Youngstown	
Baltimore, export..... 0.225	Comb.	0.19
New York, domestic..... 0.34	Detroit	0.29
New York, export..... 0.255	Cincinnati	0.29
Boston, domestic..... 0.365	Indianapolis	0.31
Boston, export..... 0.255	Chicago	0.34

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 30c. to 40c.; ship plates, 30c. to 40c.; ingot and muck bars, structural steel, common wire products, including cut or wire nails, spikes, and wire hoops, 30c. to 40c.; sheets and tin plates, 30c. to 40c.; rods, wire rope cable and strands, 75c.; wire fencing, netting and stretcher, 49c.; pipes not over 6 in. in diameter, 50c.; over 8 in. in diameter, 2 ½c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron.....	\$6.45
Old range non-Bessemer, 51½ per cent iron.....	5.70
Messabi Bessemer, 55 per cent iron.....	6.20
Messabi non-Bessemer, 51½ per cent iron.....	5.55
Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore	
Iron ore, low phos., 55 per cent iron in dry Spanish or Algerian.....	11.50c.
Iron ore, Swedish, average 66 per cent iron.....	9.5c. to 10c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus.....	43c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	41c.
Manganese ore, Brazilian or Indian.....	45c.
Tungsten ore, per unit, in 60 per cent concentrates, nominal.....	\$7.50 to \$8.50
Chrome ore, basic, 48 per cent Cr ₂ O ₃ , crude per ton, c.i.f. Atlantic seaboard.....	18.00 to 28.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₂ , New York.....	60c. to 70c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, per ton.....	\$115.00 to \$125.00
Ferromanganese, British, 80 per cent, f.o.b. Atlantic port, duty paid.....	115.00 to 125.00
Spiegeleisen, domestic, 19 to 21 per cent, furnace, per ton.....	40.00
Spiegeleisen, domestic, 16 to 19 per cent, furnace, per ton.....	39.00
Ferrosilicon, 50 per cent, delivered per gross ton.....	92.50 to 95.00
Ferrosilicon, Bessemer, 10 per cent, per ton, furnace.....	48.50
Ferrosilicon, Bessemer, 11 per cent, per ton, furnace.....	51.80
Ferrosilicon, Bessemer, 12 per cent, per ton, furnace.....	55.10
Ferrosilicon, Bessemer, 13 per cent, per ton, furnace.....	59.10
Ferrosilicon, Bessemer, 14 per cent, per ton, furnace.....	64.10
Silvery iron, 6 per cent, per ton, furnace.....	37.00
Silvery iron, 7 per cent, per ton, furnace.....	38.00
Silvery iron, 8 per cent, per ton, furnace.....	39.50
Silvery iron, 9 per cent, per ton, furnace.....	41.50
Silvery iron, 10 per cent, per ton, furnace.....	43.50
Silvery iron, 11 per cent, per ton, furnace.....	46.80
Silvery iron, 12 per cent, per ton, furnace.....	50.10
Ferrotungsten, per lb. contained metal.....	90c. to 95c.
Ferrochromium, 4 to 8 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered.....	11c. to 12c.
Ferrovanadium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobaltitium, 15 to 18 per cent, per net ton.....	200.00

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica per net ton f.o.b. Illinois and Kentucky mines.....	\$20.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica per net ton, f.o.b. Illinois and Kentucky mines.....	21.50
Per 1000 f.o.b. works:	
Fire Clay:	
Pennsylvania.....	High Duty \$48.00 to \$51.00
Ohio.....	45.00 to 47.00
Kentucky.....	45.00 to 47.00
Illinois.....	48.00 to 50.00
Missouri.....	48.00 to 50.00
Ground fire clay, per net ton.....	38.00 to 43.00
Silica Brick:	
Pennsylvania.....	6.50 to 9.00
Chicago.....	47.00
Birmingham.....	52.00
Ground silica clay, per net ton.....	48.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	8.50 to 10.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Chrome Brick:	
Standard size, per net ton.....	40.00

Power Tunnel of Niagara Falls Company Placed in Service

BUFFALO, April 2.—The new power tunnel of the Niagara Falls Power Co. was placed in service at Niagara Falls, N. Y., today. It was built at a cost of \$2,500,000, and is a part of the new power project which will cost, when completed, \$11,000,000. The function of this particular enterprise is to deliver water from the Niagara River above the Falls to a new power house below the Falls, where three generators will develop 210,000 hp. a second. The tunnel

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$45.00
Rolling billets, 2-in. and under.....	\$45.00 to 47.50
Forging billets, ordinary carbons.....	55.00
Sheet bars, Bessemer.....	45.00
Sheet bars, open-hearth.....	42.50 to 47.50
Slabs.....	45.00 to 47.50
Wire rods, common, soft base, No. 5 to ¼-in.....	49.00 to 55.00
Wire rods, common, soft, case, coarser than ¼-in.	\$2.50 over base
Wire rods, screw stock.....	\$5 per ton over base
Wire rods, carbon 0.20 to 0.40.....	\$3 per ton over base
Wire rods, carbon 0.41 to 0.55.....	\$5 per ton over base
Wire rods, carbon 0.56 to 0.75.....	\$7.50 per ton over base
Wire rods, carbon over 0.75.....	\$10 per ton over base
Wire rods, acid.....	\$15 per ton over base
Skelp, grooved, per lb.....	2.35c. to 2.80c.
Skelp, sheared, per lb.....	2.35c. to 2.80c.
Skelp, universal, per lb.....	2.35c. to 2.80c.

Finished Iron and Steel, f.o.b. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, per lb.....	2.25c.
Rails, light, rerolled, base, per lb.....	2.25c.
Spikes, ½-in. and larger, base, per 100 lb.....	\$3.15
Spikes, ½-in., ⅜-in. and ⅜-in., base, per 100 lb.....	\$3.25 to 3.75
Spikes, ⅜-in., base, per 100 lb.....	3.25 to 3.75
Spikes, boat and barge, base, per 100 lb.....	3.50
Track bolts, ¾-in. and smaller, base, per 100 lb..	4.25 to 5.50
Track bolts, ¾-in. and larger, base, per 100 lb..	4.15 to 4.50
Tie plates, per 100 lb.....	2.55 to 2.60
Angle bars, per 100 lb.....	2.75
Bars, common iron, base, per lb.....	2.50c. to 2.60c.
Bars, rail, steel reinforcing, base, per lb.....	2.15c. to 2.25c.
Ground shafting, base, per lb.....	3.40c.
Cut nails, base, per keg.....	\$3.40

Alloy Steel

S.A.E. Series Numbers	Bars 100 lb.
2100 (1½% Nickel, 10 to 20 per cent Carbon) ..	\$3.50 to \$37.5
2300 (3½% Nickel)	5.50 to 5.75
2500 (5% Nickel)	8.00 to 8.25
3100 (Nickel Chromium)	4.50 to 4.75
3200 (Nickel Chromium)	6.25 to 6.50
3300 (Nickel Chromium)	8.50 to 8.75
3400 (Nickel Chromium)	7.50 to 7.75
5100 (Chromium Steel)	4.00 to 4.25
5200 (Chromium Steel)	7.50 to 8.50
6100 (Chromium Vanadium bars)	5.25 to 5.50
6100 (Chromium Vanadium spring steel)	5.00 to 5.25
9250 (Silico Manganese spring steel)	4.00 to 4.25
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	5.25
Chromium Molybdenum bars (0.70-1 Chromium, 0.25-0.40 Molybdenum)	5.00 to 5.25
Chromium Molybdenum spring steel (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	4.75 to 5.00
Above prices are for hot-rolled alloy steel bars, forging quality, per 100-lb. f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are \$10 per gross ton less than net ton price for bars of same analyses. On smaller than 4 x 4-in. billets down to and including 2½-in. sq. there is a size extra of \$10 per gross ton; on billets smaller than 2½-in. sq. the net ton bar price applies.	

required 23 months for excavation and most of it was drilled through solid rock. It is 4300 ft. long and the interior dimensions are 32 ft. wide by 32 ft. high. Most of this work lies under the heart of the business section of Niagara Falls, N. Y.

The Farrell, Pa., plant of the Carnegie Steel Co. has been awarded the safety trophy for having the best lost-time accident record in February, as compared with its safety record for the past five years. The Farrell works has received the trophy on three different occasions.

NON-FERROUS METALS

The Week's Prices

Cents Per Pound for Early Delivery

	Copper, New York Straits	Lead		Zinc	
		Electro-	Tin	New	St.
March	Lake	lytic*	New	New	St.
28.....	17.37½	17.12½	47.62½	8.50	8.20
29.....	17.37½	17.12½	48.12½	8.50	8.15
30.....	17.37½	17.12½	....	8.50	8.20
31.....	17.37½	17.12½	....	8.50	8.05
April					
2.....	17.37½	17.12½	48.00	8.50	8.20
3.....	17.37½	17.12½	47.62½	8.50	8.20
					8.00
					7.65

*Refinery quotation; delivered price 1/4 c. higher.

New York

NEW YORK, April 3.

Because of the Easter holidays all of the markets are quiet. Demand for copper is negligible, but prices are firm. The tin market is exceedingly dull at unchanged levels. Buying of lead is light, but prices are firm. In a very quiet market zinc has slightly declined.

Copper.—No demand of any consequence is reported by the leading producers of either electrolytic or Lake copper. Dealers are offering very small quantities of metal, but even these are insignificant. There is scarcely any shading of the producers' price of 17.37½ c., delivered, for electrolytic copper. The London market is a little higher today than it has been recently, and the tendency over there has had some effect on this market. This is offered as one explanation of the firm position here in the face of very light demand. Export demand is reported fair.

Copper Averages.—The average price of Lake copper for the month of March, based on daily quotations in THE IRON AGE, was 17.25 c., New York. The average price of electrolytic copper was 16.84 c., refinery, or 17.09 c., delivered.

Tin.—With the exception of Tuesday, March 27, the Straits tin market has been an exceedingly dull affair. The holidays here, but more particularly those in London, where Easter Monday is a full holiday, are the chief cause for the lack of demand. On the day referred to, March 27, 500 to 600 tons changed hands with dealers the principal buyers. The market has been featureless since then, including yesterday and today. As a rule there have been more sellers than buyers and undoubtedly prices would have receded farther had there been active buying. Offerings, however, were not large. Spot Straits tin today was quoted at 47.62½ c., New York. The London market was £6 to £8 per ton higher than a week ago, with spot standard quoted at £219, future standard at £219 15s. and spot Straits at £229. Deliveries into consumption during March are returned as 6634 tons, which is about the same as the January report. The quantity in stock and landing March 31 was 4067 tons and the quantity afloat on April 2 was 8518 tons. Importations for March were 8647 tons, with the quantity for the first quarter reported as 19,807 tons.

Lead.—The market is quiet but firm. Consumers are exceedingly well covered and buying for May shipment has not yet really been inaugurated. The leading interest continues to take some business at its official quotation of 8.25 c., New York, but sales are reported by independents at 8.50 c., New York, and 8.20 c., St. Louis.

Zinc.—A further moderate reaction continues in the market for prime Western zinc, due more to lack of immediate demand than to any inherent weakness. Producers generally look for higher prices during April. Sales are confined to carload and 100-ton lots for April, May or June shipments. The trade as a whole has its eyes on the London market, which at present is quite a factor in sentiment on this side. For April delivery prime Western is quoted at 7.65 c. to 7.70 c., St. Louis, or 8 c. to 8.05 c., New York, with May and June shipments about 5 and 10 points lower respectively.

Nickel.—Shot and ingot nickel are quoted unchanged at 29 c. to 32 c., with electrolytic nickel held at 32 c., these being the quotations of the leading producers. In the outside spot market shot and ingot nickel are quoted at 29 c. to 32 c.

Antimony.—Chinese metal in wholesale lots for early delivery is quoted at 8.75 c. per lb., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, in wholesale lots for early delivery, as obtained from importers of the foreign product, is quoted at 24.50 c. to 25 c. per lb., New York, duty paid. No quotations are available from the leading domestic producer.

Old Material.—The market is active and business is better than last week. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	16.50
Copper, heavy and wire.....	15.50
Copper, light and bottoms.....	13.00
Heavy machine composition.....	13.25
Brass, heavy	10.50
Brass, light	7.75
No. 1 red brass or composition turnings.....	12.25
No. 1 yellow rod brass turnings.....	9.50
Lead, heavy	7.75
Lead, tea	6.25
Zinc	5.25

Chicago

APRIL 3.—Demand for all of the metals has been light and tin and zinc have declined. We quote, in carload lots, lake copper, 17.50 c.; tin, 49 c.; lead, 8.30 c.; spelter, 7.80 c.; antimony, 10.50 c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 14 c.; copper bottoms, 12.25 c.; red brass, 11.75 c.; yellow brass, 8.75 c.; lead pipe, 6.50 c.; zinc, 5 c.; pewter, No. 1, 29 c.; tin foil, 33 c.; block tin, 38 c., all buying prices for less than carload lots.

1921 OUTPUT OF MACHINERY

Textile Machinery Led, with Pumps and Machine Tools Next in Order

WASHINGTON, April 3.—Reports of the Census Bureau show the total value of machinery produced in the United States in 1921 to have been \$1,225,059,000, compared with \$1,590,234,000 in 1919. The reduction amounts to 23.1 per cent. Both figures may be compared with the 1914 total of \$380,596,000. Reduction in 1921 as compared with 1919 covered most of the principal machinery items. Textile machinery and a few small items registered a gain. Agricultural implements and electrical machinery are not included here, having been reported separately.

The principal items listed below, for 1921, 1919 and 1914, comprise all items having a production of over \$30,000,000 in any year. These 17 items constitute about 60 per cent of the total production.

	1921	1919	1914
Machine tools.....	\$69,254,000	\$212,400,000	*
Other metal working machinery	19,288,000	57,541,000	\$17,120,000
Textile machinery....	129,948,000	122,089,000	*
Pumps and pumping machinery	69,891,000	66,456,000	27,457,000
Printing machinery...	54,870,000	53,325,000	19,229,000
Elevators and elevator machinery	40,932,000	70,187,000	17,228,000
Sewing machines.....	35,608,000	57,938,000	27,238,000
Adding and calculating machines.....	30,016,000	53,993,000	14,734,000
Mining machinery....	30,290,000	51,243,000	13,254,000
Typewriters	33,361,000	43,313,000	20,517,000
Washing machines.....	32,444,000	42,896,000	*
Cash registers and parts	23,944,000	31,574,000	15,935,000
Cranes	20,445,000	52,534,000	4,194,000
Refrigerating machinery	33,174,000	30,667,000	10,522,000
Wood - working machinery	25,646,000	36,763,000	13,393,000
Paper and pulp mill machinery	31,581,000	27,421,000	8,588,000
Dairy machinery.....	17,759,000	34,279,000	12,998,000

*Not reported separately.

FABRICATED STEEL BUSINESS

Public Utilities Loom Large Among Awards—Still Many Fresh Proposals

Fresh proposals involving round tonnages are appearing before the fabricating trade, and awards continue to swell the total steel demand. Of the awards structures for public utilities loom large.

The Duquesne Light & Power Co. plant, Pittsburgh, 2000 tons, to the Jones & Laughlin Steel Corporation.

South Street bridge, Wilkes-Barre, Pa., 1000 tons, McLean Contracting Co. low bidder; steel fabricator not yet announced.

United Electric Light & Power Co., new unit at Hell Gate power plant, New York, 1000 tons, to American Bridge Co.

Young Men's and Young Women's Hebrew Association Building, Philadelphia, 1100 tons, to New York Shipbuilding Co.

Edison Electric Co. power plant, Weymouth, Mass., 3300 tons, let to unnamed fabricator.

Coliseum at State Fair Grounds, Syracuse, N. Y., 900 tons; general contract awarded.

Philadelphia & Reading Railroad terminal, Camden, N. J., 1700 tons, to New York Shipbuilding Co.

General Electric Co. addition, Schenectady, N. Y., 400 tons, to H. K. Ferguson Co.

Pacific Mills, Duncan, S. C., 2400 tons, to McClintic-Marshall Co.

Richmond, Fredericksburg & Potomac Railroad, viaduct, 900 tons, to American Bridge Co.

New Haven Gas Light Co., boiler house, New Haven, Conn., 400 tons, to unnamed fabricator.

Highway bridge, Manchester, N. H., 1200 tons, to Boston Bridge Works.

Pacific Gas & Electric Co., general office building, San Francisco, 2650 tons, to Judson Mfg. Co.

Chicago & Eastern Illinois, deck and through plate girder spans, one 157-ft. through riveted truss span and I-beam spans, 687 tons, to American Bridge Co.

Peoples Banking & Trust Co. building, Marietta, Ohio, 283 tons, to Riverside Bridge Co., Martins Ferry, Ohio.

Transmission towers, Illinois Central Traction Co., Peoria, Ill., 300 tons, to American Bridge Co.

Transmission towers, Des Moines Electric Co., Oskaloosa, Iowa, 500 tons, to American Bridge Co.

Lock gates for Ohio River dams, 1000 tons, National Bridge Co. and Milwaukee fabricator low bidders.

Wharf structures for Port of New Orleans, 900 tons, to Virginia Bridge & Iron Co. at \$102 a ton erected.

Building for Studebaker Corporation, South Bend, Ind., 4500 tons, to McClintic-Marshall Co.

Transmission towers for Central Indiana Power Co., Indianapolis, 2000 tons, to Blaw-Knox Co.

Transmission towers for Pennsylvania Water & Power Co., 1400 tons, to Riter-Conley Co.

General Electric Co., Schenectady, N. Y., extension to factory building, 600 tons, to Shoemaker Bridge Co.

Studebaker building, Cleveland, 130 tons, to Republic Structural Iron Works.

National Screw & Tack Co., Cleveland, track elevation work, 100 tons, to Riverside Bridge Works.

Woolworth building, Toledo, 300 tons, to the Bancroft Jones Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

American Telephone & Telegraph Building, New York, 15,000 tons; plans expected to be issued shortly.

Public Schools Nos. 66, 67, 70 and 100, New York, totaling 5000 tons.

Elks' Club, Williamsport, Pa., 300 tons.

Potomac Electric Co., Washington, 900 tons, for an extension.

Delaware, Lackawanna & Western Railroad, 900 tons, for remodeling bridge at Troy, N. Y.

Pennsylvania Railroad, 300 tons, for wire towers over Delaware River bridge, Philadelphia.

Union Pacific Railroad, bridge work, 4500 tons.

Building at State and Lake Streets, Chicago, 1200 tons.

Buildings C, E and P, Fort Wayne, Ind., for International Harvester Co., 1200 tons.

Armory for 127th Field Artillery, Chicago, 850 tons.

Plant for Pittsburgh Plate Glass Co., Zanesville, Ohio, 800 tons, bids being taken.

Washington Iron Works, Seattle, Wash., factory, 500 tons.

RAILROAD EQUIPMENT BUYING

Fresh Round Inquiries for Cars—Locomotive Business Noteworthy

The well-sold condition of car building plants does not deter fresh inquiries and the week has brought fresh proposals for cars and round purchases of locomotives.

According to tabulation of reports filed by the carriers with the car service division of the American Railway Association, 162,912 freight cars were on order on March 1.

The Virginian Railroad has inquired for 1000 all-steel hopper cars of 120 tons capacity and 500 all-steel hoppers of 70 tons capacity.

The Chesapeake & Ohio Railroad has increased its orders with the American Car & Foundry Co. and the Standard Steel Car Co. by 1000 cars each, making a total of 4000 cars this road has ordered within the past two or three weeks.

The Hocking Valley Railroad has inquired for 2000 automobile cars.

The Detroit, Toledo & Ironton Railroad is in the market for 2000 cars, mostly box cars.

The Canadian Pacific Railroad is inquiring for 1000 box cars.

The Pennsylvania Equipment Co., Norwood Station, Pa., is in the market for two 15-ton 36-in. gage saddle tank locomotives for Michigan delivery.

The Wabash Railroad has ordered 50 locomotives from the American Locomotive Co.

The Chesapeake & Ohio Railroad has ordered 27 locomotives from the American Locomotive Co. and will place an additional order soon for 25 more.

The Denver & Rio Grande Western Railroad has ordered 10 locomotives from the American Locomotive Co.

The Canadian National Railways has placed a further order with the Canadian Locomotive Co. for seven heavy transfer locomotives.

Louisiana & Arkansas has ordered 20 ballast cars from the American Car & Foundry Co.

The Illinois Central has awarded 1000 gondola car repairs to the Ryan Car Co. and has put out an inquiry for 25 suburban coaches.

The Louisville & Nashville has placed 15 coaches and two dining cars with the American Car & Foundry Co. and 14 baggage and 10 baggage and mail cars with the Pressed Steel Car Co.

The Duluth, Missabe & Northern has ordered 100 box cars from the American Car & Foundry Co.

The Hudson & Manhattan has placed 75 coaches with the American Car & Foundry Co.

The Merchants Despatch is building 1500 refrigerator cars in its own shops.

The Cambria & Indiana has awarded 100 hopper cars to the Cambria Steel Co.

The Kansas, Oklahoma & Gulf has ordered 400 gondola cars from the American Car & Foundry Co.

The Santa Fe has placed three business cars with the Pullman Co.

The Southern Pacific has ordered 40 passenger cars from the Standard Steel Car Co., 41 passenger cars from the American Car & Foundry Co., 10 dining cars and 60 interurban cars from the Pullman Co.

The Southern Railway will build 2000 coal cars in the Lenoir Car Works.

The St. Louis-San Francisco has placed 1000 freight-car bodies with the American Car & Foundry Co.

The Texas Co. has awarded 200 tank cars to the Pennsylvania Tank Car Co., 50 tank cars to the Standard Tank Car Co. and 50 tank cars to the Chicago Steel Car Co.

The White Eagle Oil & Refining Co. has placed 100 tank cars with the Pennsylvania Tank Car Co.

The Imperial Refining Co., Tulsa, Okla., has let 50 tank cars to the Standard Tank Car Co.

The Chesapeake & Ohio has awarded repairs on 1500 freight cars to the Richmond Car Works.

The Missouri Pacific has let repairs on 1500 box cars to the Springfield Car & Equipment Co. and on 600 coal cars to the Mount Vernon Car Mfg. Co.

The Atlantic Coast Line is inquiring for 500 gondola cars and 50 under frames.

The Boston & Maine is in the market for 200 refrigerator cars in addition to 200 flat cars mentioned a week ago.

The Chicago & Eastern Illinois is inquiring for two dining cars and the Seaboard Air Line for one private car.

NEW ENGLAND CONDITIONS

Foundry, Machine Tool and Rolling Mill Equipment Activity in Central Massachusetts

WORCESTER, MASS., April 2.—The metal industries of central Massachusetts are, as a rule, exceedingly prosperous. Those which are not operating at capacity, including the machine tool shops, have improved in a big way, with prospects of a continuation of more favorable conditions. Some handicap has been caused by the slow arrival of raw materials, due to inclement weather and embargoes, and, in part, of course, because mills have been unable to keep up with the demands of buyers, but the end of winter has brought improvement.

Also, in common with the rest of the country, this section is suffering from a growing shortage of labor, which is acting as a brake on production, a fact which would not be resented in itself but for the reason it is also working as an active agent in increasing cost of labor. No general advances have been made in metal lines of the Worcester district of late, applying to whole establishments, but there has been a gradual increase in wages, especially of skilled workers, and that other element, which has come to be more highly prized than formerly, the able-bodied common laborer. Labor itself is aware of the situation and has begun to shop around, seeking more money. But this is by no means as general as it was in the war days, for the lesson of 1920 and the crash that left jobs only for the faithful employees has not been forgotten by the mass of the men.

The foundries are now operating close to capacity. Users of iron casting are complaining of the advance in prices which fell from the 11 to 14 cents of the good times to 5 cents and have now risen to the vicinity of 8½ cents. Similar complaint is made of the composition metals. The malleable iron foundries have been on a capacity basis for months.

Advances in machinery prices are becoming pretty general, partly due to increased cost of materials, partly to the growing cost of labor. In spite of the fact that the machine tool people are not yet, as a whole, really busy, their prices have advanced, not because the builders want to increase them, but because it is absolutely necessary to do so if any profit is to be left. The machine division of the Norton Co. has just figured the required advances on its line of grinding machines, and has found that on the types most commonly sold the increased cost is about 8 per cent, and the company's lists have been changed accordingly.

Machine Tool Trade Below 50 Per Cent Basis

The machine tool industry of Worcester is decidedly on the up grade, though the shops are by no means running at full capacity. In some cases the manufacturers are selling from stock, keeping down manufacturing in the meanwhile. But in some other cases the demand requires active production. Probably the average of the local shops is still less than 50 per cent of capacity, but some firms are doing better than that.

The machine division of the Norton Co. is now operating at close to 75 per cent capacity, with upward of 400 men working the regular schedule. January's orders represented 50 per cent capacity, February's something better than that, while March reached 75 per cent. The company reports that about one-half of the demand is from the automobile trade, and the rest is well distributed. The textile machinery people are taking some tools. The railroad buying is an important factor with this company, the demand being confined chiefly to machines for grinding piston rods and axles. One big carwheel grinder has been sold and inquiries lead to the belief that other machines of this type will be bought in the near future, renewed interest being shown in the grinding of wheels.

At the present time production is hardly keeping up with orders. The shop is well sold up through April and May, nearly the same condition exists for June, and some deliveries on orders now on the books will not be made until July.

The Norton Co.'s wheel division is very busy. The total working force at the company's Worcester plant is about 2200 people, which is being increased steadily at the rate of from 25 to 30 a week.

The Heald Machine Co., manufacturing internal grinding machines, is operating at about 66 per cent capacity, doubling the business of the period of extreme depression, during which, however, this company suffered less than most of the machine tool builders, because of the marketing of a piston ring grinder for garage and repair shop use. The Heald company reports large inquiries which promise to materialize in largely increased business in the near future.

The Reed-Prentice Co. is on a 50 per cent basis, with large orders in hand, which include some special and more semi-special machines, though business is by no means confined to those types. The company states that much of its business is from a diversified list of customers.

The Leland-Gifford Co. is booking many orders for sensitive drilling machines. The Stockbridge Machine Co. is quite busy, chiefly on orders from the railroads for shapers. J. E. Snyder & Son have a large stock of upright drills on hand, many of them built during the depression, and consequently are filling orders without doing much manufacturing. The Woodward and Powell Planer Co. is having a similar experience. The company had a large stock of completed parts, and orders are filled by assembling after the machining of housings, beds and tables.

The O. S. Walker Co., which had been very dull, is now operating at 60 per cent of its best 1920 business, orders being chiefly for magnetic chucks. The company's January bookings were four times those of January, 1922, and February's were twice and March's three times those of the corresponding month of last year. Most of the new business is from the Middle West, but not so much from the automobile factories as from miscellaneous customers. Factories in general are among the best buyers, according to this company's experience.

Rolling Mill Equipment Orders

The Morgan Construction Co. put its Worcester works on a double shift April 1, orders in hand demanding a larger production than could be obtained with a single shift of about 500 men. The company is engaged on its order from the Ford Motor Co. for a blooming mill, merchant mill and rod mill to be installed at River Rouge, Mich., and on an order for another mill, the buyer of which the company is not yet ready to announce. In addition there is the general run of orders for gas producers and miscellaneous equipment.

The Morgan company in a new list of the mills which it has installed, adds many which have been constructed since the war.

Those for foreign customers comprise the following: Acieries de Firminy, Dunkerque, France, merchant mill; United Steel Companies, Ltd., Sheffield, England, merchant mill and strip mill; Acieries de Longwy, Mont St. Martin, France, billet mill, billet and sheet bar mill and rod mill; Whitehead Iron & Steel Co., Tredegar, England, hoop mill; Homecourt, Forges & Acieries, St. Chamond, France, billet mill and billet and sheet bar mill; Broken Hill Proprietary Co., Newcastle, Australia, billet mill and billet and sheet bar mill; Alfred Hickman, Ltd., Staffordshire, England, skelp mill; Denain & Anzin, Paris, France, billet mill and billet and sheet bar mill.

American mills built by the Morgan company comprise the following: Weirton Steel Co., Weirton, W. Va., billet mill and billet and sheet bar mill; Whitaker-Glessner Co., Portsmouth, Ohio, billet and sheet bar mill and rod mill; Trumbull Steel Co., Warren, Ohio, strip mill; Interstate Iron & Steel Co., Chicago, merchant mill; United Alloy Steel Corporation, Canton, Ohio, merchant mill; Kansas City Bolt & Nut Co., roughing and finishing mill; La Belle Iron Works, Steubenville, Ohio, sheet bar mill; and the Inland Steel Co., Indiana Harbor, Ind., merchant mill and billet and slab mill.

BOOK REVIEWS

Tool Engineering—Fixtures for Turning, Boring and Grinding. By Albert A. Dowd and Frank W. Curtis. 340 pages, 6 x 9 in. Published by McGraw-Hill Book Co., Inc. 370 Seventh Avenue, New York. Price, \$3.50.

The book is the second of a series of three volumes which are intended to cover completely the use of fixtures in metal cutting operations. It discusses in 16 chapters of almost equal length the factors of importance which affect the design of tools and fixtures for turning, boring and grinding operations. Fundamental points of design are dealt with in order that the reader may understand thoroughly the reasons why certain things are done and, having thus established a substantial foundation, it is expected that he may develop his ideas in a practical manner.

In a chapter on the consideration of turret and engine lathe tooling, the influence of the form of the work and the type of machine most suited to a given piece of work are outlined and also the application of tools and fixtures. The principles underlying the construction and application of chucks and collets are also given. A chapter on the design of chuck jaws includes the principles involved in chucking, and methods of holding rough work on chucks and fixtures for turret lathe operations. A number of methods for holding work for a second operation, locating from some previously finished surface, are outlined in a section devoted to second operation work. A chapter on the design of special fixtures takes up second operation tooling on special work, sliding index, angular, counterbalanced and other special fixtures. A section on inside holding methods includes details on straight, taper and other arbors. Factors to be considered in designing tools and the arrangement and method of holding tools are given in a section on turning tools for turret lathes. Chapters are devoted to boring, facing and recessing tools respectively, and another to reamers and floating holders. Points in the use and design of cross-slide tools are given, and a section on attachments for turret lathes includes a quantity of useful material.

Methods employed in designing tools for turret lathes, use of layouts and sketches and the different ways of developing the design are included under layout. A chapter is devoted to vertical lathes, vertical machines and boring mills and another to the consideration of tapered and curved surfaces. Fixtures for grinding, the principles involved, points of design and methods of holding for various types of grinding conclude the book.

The book is clearly written and fully illustrated. It is undoubtedly a meritorious contribution to the subject, and one of practical usefulness.

Tables Annuelles de Constantes et Données Numériques de Chimie, de Physique et de Technologie. Volume IV, parts 1 and 2. Pages 1377, of which 626 are in part 1. Published by Gauthier-Villars et Cie., Paris, and the University of Chicago Press, Chicago. Price \$13.25 each part.

These two volumes are labeled 1921 and 1922, following Volumes I, II and III, published respectively in 1910, 1911 and 1912. They have been issued by a commission appointed by the Seventh International Congress of Applied Chemistry. While the text and tables are in French, the index and the headings are published in French, German, English and Italian. As the name indicates, the volumes are filled from cover to cover with tables taken from a wide variety of sources and giving appropriate credit to the original sources.

It will suffice to give a list of the subjects covered in the two portions of the work. Part 1 includes coefficients of compressibility, elasticity, density, viscosity, surface tension, coefficients of expansion, specific heat, thermal conductivity, thermo-dynamics, melting points, vapor pressures, laws of gases, acoustics, photometry, radiation, infra-red spectrum, coefficients of absorption, refraction and dispersion, spectroscopy and rotatory

power. Part 2 covers electricity, magnetism, atomic properties and electrons, radio activity, cosmic physics, atomic weights, molecular weights, transition points, diffusion, osmotic pressures, solubility, thermo-chemistry, chemical equilibrium, velocity of reaction, conductivity of electrolytes, electromotive forces, colloids, crystallography and mineralogy, organic chemistry, essential oils, oils, fats and waxes, animal physiology, vegetable physiology and chemistry, engineering and metallurgy, the latter being divided into technological data for metals and alloys, and mechanical constants. Finally, there is a supplement and list of errata.

To the man engaged in research along physical and chemical lines, this work should prove an exceedingly valuable help. The number of separate topics covered in the long list of chapters given above is almost bewildering and the amount of concentrated technical information carried between the covers is enormous. The work will find a ready place on the shelves of libraries of technical schools and of other institutions where a large amount of study is going on.

Mechanical World Year Book. Pages, 214, 4 x 6½ in. Published by Emmott & Co., Ltd., 65 King Street, Manchester, England. Thirty-sixth year of publication. Price, 1s. 6d.

The 1923 volume of this work contains much the same information as shown in previous editions, with some additions, such as a lengthy section devoted to fan work; new data on ventilation, conditioning of air, humidification, airways, pressure losses in duct work, drying, dust and fume removing, cupola blast, mechanical draught, etc. The section on safe loads and deflections of beams has been rewritten and new illustrations prepared. The notes on belting have been extended and revisions effected in various other sections. Among the new tables is one giving the lengths of diagonals of certain sections and a revised table of gages. The work contains a vast amount of information for all engaged in metalworking activities, and while a good deal of the matter has application only to British practice, a considerable part is of general interest and usefulness.

Tales from the Gangway. By Pat Dwyer. Pages, 450, 6 x 9 in.; illustrated. Published by the Penton Publishing Co., Cleveland. Price, \$3.

The articles which comprise the book, "Tales from the Gangway," were first published in the *Foundry* and are interesting examples of wit and wisdom regarding foundry practice. Each article is introduced in anecdotal and somewhat humorous fashion and concludes with a good deal of practical instruction on foundry methods. In other words, it is technical material sugar-coated in such a way that it makes interesting reading for the average foundry worker who does not want his technical reading to be too technical.

The chief criticism of it as a technical book is that its 450 pages make rather long reading for the foundryman who wants to absorb the rudimentary principles of foundry practice without undue expenditure of time. In its aim to entertain as well as instruct, however, it will be valued more highly by many readers than the highly technical works on foundry practice. The experienced foundryman will get lots of fun out of it and not a little sound information; it is a book that he may want to pass along to his son who is not yet out of a college, but who expects, upon graduation, to be taken into his dad's business. The illustrations are in tone with the humorous character of the book and serve their purpose in making it easy to read.

The Department of Commerce has issued "Australia: A Commercial and Industrial Handbook," by A. W. Ferrin, recently American Trade Commissioner in that country. It is a 160-page book, bound in buckram, with maps and illustrations, presenting in popular style a comprehensive and interesting picture of Australia, economic, social, political, commercial, and industrial—and may be obtained from any district or co-operative office of the bureau of foreign and domestic commerce or on application to the Superintendent of Documents, Government Printing Office, Washington. The price is 75 cents.

PERSONAL

George Satterthwaite has resigned as vice-president of the Penn Seaboard Steel Corporation and the Tacony Steel Co., to become associated with Henry Dissen & Sons, Inc., Philadelphia. He was for a number of years connected with the original Midvale Steel Co. and the Midvale Steel & Ordnance Co. and has had a wide experience in the production of high grade steels. As general superintendent of the Nicetown works, he was in direct charge of all manufacturing. In 1917 he resigned this position to become vice-president and general manager of the Tacony Ordnance Corporation, which erected and equipped in short time a self-contained plant for the manufacture of howitzer and field gun forgings. Following the armistice the Tacony corporation consolidated with the Tacony Steel Co., Mr. Satterthwaite continuing as vice-president of the combined companies. In 1919 the Tacony company merged with the Penn Seaboard Steel Corporation and he was elected vice-president in charge of operations at the Penn Seaboard-Tacony plants in Tacony, Philadelphia; New Castle, Del., and Chester, Pa. He will continue as a director of both the Penn Seaboard Steel Corporation and the Tacony Steel Co. Mr. Satterthwaite is a graduate of Swarthmore College and a resident of Huntingdon Valley, Pa.

F. C. Giebel has been appointed Eastern representative of the Interstate Iron & Steel Co., Chicago, with headquarters at 52 Vanderbilt Avenue, New York, to succeed H. S. Schroeder, recently appointed sales manager of the bar division at the general office, Chicago. R. W. Wentworth has been appointed district manager of sales, Merchants' National Bank Building, St. Paul, Minn. The company was formerly represented in the Northwest by the Kalman Steel Co.

Reginald Clark, superintendent J. H. Williams & Co., has joined the Western Drop Forge Co., Marion, Ind., in an important executive capacity. Prior to 1918, when he became associated with the Williams company, Mr. Clark was for several years an executive of the Rolls-Royce Co. in Derby, England, and during the war was detailed by the company to supervise the production in the United States of forgings used in the Rolls-Royce battle plane motors. He sailed on March 24 for England, where he will investigate forge practices in the interests of the Drop Forge company. Upon his return he will take up his work at Marion.

Dr. W. Irving Clark, service director of the Norton Co., Worcester, Mass., sailed for Europe on the Orca from New York on March 30. He will spend the next few weeks in France.

Elmer J. Snow has been elected to the directorate of the American Brake Shoe & Foundry Co. to fill the vacancy caused by the death of James B. Curtiss. Officers were re-elected.

Louis W. Williams, manager for the last 10 years of the New York office and warehouse of the Union Drawn Steel Co., has joined the Cauldwell-Wingate Co., 381 Fourth Avenue, New York.

Arthur L. Williston, principal Wentworth Institute, Boston, and widely known in connection with educational and commercial work, such as engineering, scientific investigations and plant organization, has resigned, effective July 1. He became head of the Institute in July, 1910.



GEORGE SATTERTHWAITE

Karl E. Engstrom, of Waldo, Egbert & McClain, Inc., Buffalo, has been transferred to the Boston office of the firm.

John C. Cotter, general sales manager J. H. Williams & Co., with which he has been connected for 23 years, has joined the Western Drop Forge Co., Marion, Ind., in an important executive capacity. During his long service with the Williams company Mr. Cotter has been sales manager and works manager.

Albert Schaffner, formerly with the United States Navy Yard at Philadelphia, has become associated with the H. B. Underwood Corporation, Philadelphia.

Charles R. Hook, vice-president and general manager of the American Rolling Mill Co., Middletown, Ohio, has an article in the April *Review of Reviews*, giving "A Business Man's Comments on the Ruhr Episode," based on Mr. Hook's observations while in Europe a few months ago. He refers to German economic policies since the war in unrestrained disapproval and at the same time says he is "in full accord and sympathy with the suggestion that an international body of economic experts pass on Germany's capacity to pay, provided we go farther and arrange with Great Britain to join us in a definite guarantee to France, that we will stand back of her and see that Germany pays whatever sum is decided upon."

D. M. Pitcock has resigned as superintendent of the Universal Steel Co. at Bridgeville, Pa., and will become general manager of the Lance Grojean Mfg. Co., Harrisburg, Pa., on April 1.

C. H. Uthe has become affiliated with the Northern Blower Co., Cleveland, as industrial oven engineer. He was formerly connected with the W. W. Sly Co., Cleveland.

Dana E. Williams, Akron, Ohio, has been elected president and general manager of the Semi-Steel Foundry Co., Barberton, Ohio, succeeding Herman Peterson, who recently met death in an accident.

Frederic E. Wheeler, formerly president and general manager of Finlay-Wheeler, Inc., distributor of contractors' equipment, Buffalo and Rochester, N. Y., has joined the sales staff of the Chicago office of the Blaw-Knox Co. Prior to the organization of Finlay-Wheeler, Inc., Mr. Wheeler was superintendent of construction of the Donner Steel Co., Buffalo. During the World War he served overseas as a lieutenant in the artillery.

Ernest S. Cox has been appointed Western Pennsylvania sales representative of the Krein Chain Co., Wapakoneta, Ohio. He formerly represented the National Chain Co., Marietta, Ohio, and when that company was merged into the U. S. Chain & Forging Co. he continued as sales agent of the latter in the Pittsburgh district.

F. O. Heltzel, who has been vice-president of the Heltzel Steel Form & Iron Co., Warren, Ohio, since its organization 10 years ago, has recently resigned his connection with the company.

S. C. Wilson, formerly district manager of the Pittsburgh office, Whiting Corporation, Harvey, Ill., at 1222 Fulton Building, has joined the Hockensmith Wheel & Mine Car Co. at Penn, Pa. He is succeeded by H. E. Reynolds, who has been with the Whiting Corporation for several years, having served as a sales engineer in the Chicago office for the past year or more.

William L. Hoffman, who for six years was district sales manager in Philadelphia for the Brier Hill Steel Co., Youngstown, Ohio, and who for some years before that was district manager for Hickman, Williams & Co., pig iron, has engaged in business for himself with office at 1225 Land Title Building, Philadelphia. He will specialize in mill, mine and railroad supplies. Mr. Hoffman retired from the position he held with the Brier Hill Steel Co. when that company was absorbed recently by the Youngstown Sheet & Tube Co.

W. H. Starke, vice-president Central Foundry Co., 41 East Forty-second Street, New York, has taken over management of sales of the company, succeeding S. D. Griffiths, who resigned to make another connection.

Charles Keenan, who has been engaged in the selling of railroad specialties for the Midvale Steel &

Ordnance Co. in its New York office, has resigned to enter the employ of Brown & Co., Pittsburgh, and will cover a large part of the East.

OBITUARY

A friend of J. FRED TOWNSEND, reference to whose death appeared in THE IRON AGE of March 29, pays tribute to Mr. Townsend as "a dominant figure in the circles in which he moved and known to transportation people in every section of the country as a shipper who not only controlled and directed the movement of vast tonnages, but who always played the game fairly and was esteemed accordingly. Genial in manner in marked degree and always affable even under most trying conditions, he radiated friendliness regardless of station. Especially was he the friend of the luckless, and the stranger within the gates turned to him for advice and favor intuitively, nor was either ever withheld." Mr. Townsend in his more than 20 years as traffic manager of the National Tube Co. did excellent work in the campaign for heavier loading of cars, and his communications in THE IRON AGE on this subject are well remembered.

WILLIAM H. SCHOEN, an official of a number of Pittsburgh iron and steel manufacturing companies, was found dead in his office in the Farmers Bank Building, that city, on March 27. He was born in Wilmington, Del., in 1865 and came to Pittsburgh in 1890 with his uncle, the late Charles T. Schoen, establishing the Schoen Pressed Steel Co., afterward merged with the Pressed Steel Car Co. After retiring from the latter company he still retained an interest in companies manufacturing railway equipment. While not actively engaged during the past two years on account of ill health, at the time of his death he was president of the Pennsylvania Malleable Co. and the Central Car Wheel Co., and a director of the Pittsburgh Knife & Forge Co., the Keystone Bronze Co. and the Third National Bank of Pittsburgh.

JAMES M. SHANAHAN, representative of the Henry G. Thompson & Son Co., saws and saw machines, New Haven, Conn., for the New England States and Eastern Canada, died at his home in Southington, Conn., on Feb. 27, aged 56 years. He had been associated with the company for 17 years.

SAMUEL H. JACOBS, vice-president and general sales manager of the Fanner Mfg. Co., Cleveland, died April 1 after a long illness, aged 53 years.

HARVEY B. CHESS, JR., president Consolidated Expanded Metal Co., Pittsburgh, died at his home in that city on March 30, after a brief illness. He was born in Pittsburgh in 1883 and received his education in the public schools of that city, later attending the University of Pittsburgh and the University of Vermont. He had been affiliated with the Consolidated Expanded Metal Co. since its organization in 1908 and had been its president since 1913. He served in the Engineers Corps during the World War. He was a member of the American Society of Mechanical Engineers.

GEORGE ADAM WEBER, a director of the Rail Joint Co. of America, died at his home in Pasadena, Cal., on March 29, in his 75th year. He leaves besides his wife, three daughters and a son, W. Hoyt Weber.

OTTO J. EWIG, for several years superintendent of the Watershops plant, United States Armory, Springfield, Mass., died at his home in that city March 28, in his 45th year.

EDWARD MAHER, superintendent American Engine & Boiler Works, North Tonawanda, N. Y., died at his home on March 28, aged 38 years. He was a son of John Maher, who founded the company.

THOMAS S. CHALMERS, president Chalmers & Williams, Inc., manufacturer of mining machinery, Chicago, died at his home in that city on March 26 aged 41 years. He was a graduate of Cornell University.

EUGENE L. HOWE, president Standard Malleable Iron Co., Muskegon Heights, Mich., died at his home at

Muskegon on March 18, following a two weeks' illness. Mr. Howe was born at Levann, N. Y., 65 years ago. He learned the pattern making trade as a youth and made his way to the position of superintendent of the Ewart Mfg. Co., now the Indianapolis plant of the Link-Belt Co. Later he was superintendent of the Eberhardt Mfg. Co., Cleveland. From there he went to Muskegon and founded the Standard Malleable Iron Co.

CONDITIONS IN DETROIT

Shortage of Castings and Plate Glass—Delivery of Steel Is Satisfactory

DETROIT, April 2.—Reports that some of the large Detroit automobile companies were having difficulty in keeping up with their production schedules owing to shortage of steel are not borne out by the operating officials of several of the larger plants. A good deal of pressure has been brought to bear upon the steel mills and upon the railroads to get shipments through, and the results are satisfactory, and the Detroit automobile plants are producing at top speed. The only serious shortages are in malleable castings and plate glass. The Ford Motor Co. is reported to have bought all of the plate glass it could get abroad, about 3,000,000 ft.

The General Motors Corporation has been buying material for third quarter in a way that would indicate the belief of its officials that the phenomenal demand for automobiles will continue well through the year. The Ford Motor Co. has bought little or nothing for third quarter.

The shortage of malleable castings is largely due to shortage of labor. Most of the malleable iron foundries in Michigan have lately been turning away attractive business because of their inability to obtain sufficient numbers of skilled men.

No definite plans have been announced by the Ford Motor Co. regarding the power plant site it recently purchased near Minneapolis and St. Paul. The power permit granted to the Ford company provides for 15,000 hp., which is more than can be utilized by the Ford plant which will be built there. The tentative plans of the company provide for an assembling unit to produce 500 to 600 cars a day.

Trumbull-Cliffs Furnace Co. to Build By-Product Plant

Trumbull-Cliffs Furnace Co., Warren, Ohio, has placed the contract with the Koppers Co., Pittsburgh, for a new by-product plant to consist of 47 improved type combination coke and gas ovens, together with by-product and motor fuel recovery installations. It is estimated that each of these ovens will carbonize 25 tons of coal per day or a total of 429,000 tons annually for the battery. Figuring on the basis of 70 per cent recovery, this will mean an annual coke yield of approximately 290,000 tons.

Wages Advanced in Pittsburgh Building Trades

PITTSBURGH, April 3.—Common labor is to be paid 60c. an hour until July 1 and then 70c., under the terms of an agreement reached here yesterday in a conference between representatives of the contractors and building trades unions. This class of labor formerly was paid 50c. an hour. The hourly wage rates of the different building tradesmen follow: Painters, \$1.25, formerly \$1; bricklayers, \$1.40, formerly \$1.30; stone cutters and stone masons, \$1.25, formerly \$1.12½; structural iron workers, \$1.25, formerly \$1.12½; hod carriers, \$1, formerly, 90c.; common laborers, 60c., formerly 50c., after July 1, 70c.

Phillips Isham, New York broker in pig iron, coke and steel products, has moved his offices to 30 Church Street.

Plans of New Companies

The T. A. Kyle Co., New York, has been incorporated with capital stock of \$50,000 to operate a shipbuilding and repair plant. T. A. Kyle, of the Shipbuilding and Repair firm of Kyle & Purdy, Inc., 281 King Avenue, Long Island City, is the chief incorporator, and it is understood that the new company will be operated along the same lines and in conjunction with the latter. The incorporators are: T. A. and J. Kyle, and G. L. Bergen.

The Sohmers Sanitary Refrigerator Co., New York, has been organized to manufacture refrigerators and refrigerating equipment. The company has not decided upon any definite plans for operation. A. D. and M. S. Sohmer head the company. Address care of Gustav Steiner, 291 Broadway, New York.

The Chelsea Steel Products Co., 233 Broadway, New York, has been organized with capital stock of \$25,000 and will act as manufacturers agent, handling general iron and steel products. The incorporators are E. H. Caterson, J. M. Maher and E. B. Kalbacher.

The Turbax Corporation, 54 West Twenty-first Street, New York, has been organized with capital stock of \$75,000 and will manufacture laundry equipment, washing machines and appliances. The company is now operating in a small way, but plans to extend operations in the near future. The incorporators are: E. Cowles, R. C. Taylor and C. O. Ward.

The Revolute Wire Co., Hastings-on-Hudson, New York, has been incorporated with capital stock of \$100,000 and will manufacture general wire products. Organization processes are completed and the company waits only to complete negotiations for the manufacture and distribution of its products before going ahead with the details of operation. The incorporators are K. Brower, J. V. McAdam and A. F. Kneen. Address Kelly, Hewitt & Harte, 41 East Forty-second Street, New York, corporate representatives.

The Sterling Electric Clock Corporation, with offices at 226 East Forty-second Street and plant at 220 East Forty-second Street, New York, has been incorporated with capital stock of \$150,000 to manufacture electric recording clocks and parts to be used for automotive purposes. An established business is being acquired, and the company purposes to expand present facilities to develop a capacity of about 300 instruments per month. The incorporators are V. A. Roberts, A. W. Palmer and G. M. Hesler.

The Paesano Hydraulic Power Co., 38 Park Row, New York, has been incorporated with capital stock of \$100,000 to develop power stations in the United States and Canada. An associate company has been organized for some time in Boston and another is soon to be established in Montreal, making a combined capitalization of \$1,000,000. Immediate plans provide for erecting a large hydraulic plant at Lubec, Me., but construction will be held up for a time until financing is completed. The management hopes to begin building next fall. A plant similar to the one in Lubec will be erected in Quebec at a later date. The incorporators are V. Paesano, R. Sica and R. Curci.

W. Parsons Todd, Inc., 52 Broadway, New York, was recently incorporated with capital stock of \$100,000 to manufacture metal products. The company's plans are still indefinite, but it is understood that the management is connected with the Eastern Butte Copper Mining Co. The incorporators are W. Parsons Todd and A. W. Millhauser.

THE IRON AGE gladly rectifies an erroneous statement which appeared in its issue of March 22, to the effect that the Doyle-Brown Motorplane Corporation, a recently incorporated company, would suspend operations and that a proposal has been made to liquidate its affairs. The company is controlled by Herbert C. Doyle and Ralph M. Brown, both of whom were connected for several years in the manufacture of army aeroplanes with the Thomas-Morse Aircraft Corporation, Ithaca, N. Y., Mr. Doyle being production manager and Mr. Brown superintendent. The Doyle-Brown Motorplane Corporation proposes to manufacture aeroplanes of an improved safety design of its own invention, and its officers state that it will carry on its operations as originally planned. Mr. Brown is president, Mr. Doyle treasurer and J. M. Lowenstein, 165 Broadway, New York, attorney.

The Northern Rubber Co., Akron, Ohio, has been incorporated by L. J. Schott, formerly with the Amazon Rubber Co., for the purpose of placing the Biltwell Rubber Co. plant at Barberton, into production, at first on a small scale and later to increase production to approximately 500 tires per day.

Charles G. Miller, Ogdensburg, N. Y., has been organized with capital stock of \$50,000 to act as manufacturers' agent. Its principal activities consist of jobbing and transferring agricultural equipment of all kinds.

The Colonial Brass Works, Inc., New Britain, Conn., has been organized to manufacture cast brass marine hardware, patterns, tools and general brass goods. It will be in the

market for equipment at a later date, but is undecided as to just what its needs will be. B. J. Carlson is president and manager; A. G. Carlson, vice-president; P. C. Carlson, treasurer, and E. T. Carlson, secretary.

The Braden Co., Inc., Tulsa, Okla., has been organized to take over the McEwen Mfg. Co., Tulsa, and will add to other lines of business the manufacture of oil well supplies. The new company is now on an operating basis. Address care of R. C. Allen, Tulsa.

The Reutter Mortise Door Lock Co., Phillipsburg, Pa., has been incorporated with capital stock of \$50,000 to manufacture locks and other hardware products. Manufacturing for a time will be done by contract, but it expects to build its own shop later. Lawshe Baird heads the company.

The Gardner Electric Mfg. Co., Emeryville, Cal., recently incorporated with capital stock of \$50,000, has completed the erection of its building and the installation of machinery and is now on an operating basis. W. C. Gardner heads the company.

The Albany Steel & Iron Supply Co., 899 Broadway, Albany, N. Y., has been incorporated with capital stock of \$75,000 to operate a steel and iron works and to deal in iron and steel products. The company is still in a formative stage, but plans to establish itself on an operating basis at an early date. The incorporators are Thomas Hun, M. D. Reilly and K. F. Macafeer.

The Inland Glass Co., Chicago, incorporated for \$750,000 to manufacture illuminating glassware, has begun operation in its new \$500,000 plant. The project was promoted by J. B. Weaver, formerly vice-president of the Pullman Co., who is president of the new company, and H. Pickett Withers, formerly of Marshall Field, Glore, Ward & Co., who is secretary-treasurer of the new company.

The National Motors Corporation has been organized to acquire the Associated Motors Industries, a Delaware corporation, and to consolidate under one directorate eight automotive concerns which will bring together a group of plants capable of manufacturing a complete line of automobiles and trucks and about 80 per cent of the necessary parts. To finance the corporation, an issue of \$3,000,000 7½ per cent sinking fund ten-year convertible bonds has been offered.

The Industrial Coal Co., Chicago, has been organized to acquire approximately 6200 acres of coal land in Franklin County, Ill., together with two modern fully equipped mines. It is estimated that the land contains about 60,000,000 tons of coal, and the present daily capacity of the mines is about 5000 tons. The product is low in sulphur, ash and moisture content and of high fixed carbon. The entire output has been contracted for over a period of twenty years. Under an operating agreement the Peabody Coal Co., Chicago, will be in charge of the operation of this property.

The Kent Oil Burner Corporation, care of T. F. Kent, 111 Broadway, New York, has been organized to manufacture oil burning equipment. Arrangement will be made to have products manufactured by an outside plant, the corporation simply engaging in marketing and selling. This arrangement, however, is only temporary, and later the company expects to build a plant of its own. T. F. Kent heads the company.

The Adjustable Garden Tool Mfg. Co. has been incorporated under Delaware laws with capital stock of \$1,000,000 to manufacture garden and agricultural tools and equipment. It is still in the process of organization, and nothing definite has been decided as to future plans. Address care of the Colonial Charter Co., Ford Building, Wilmington, Del.

The Gaylord Mfg. Co., Paterson, N. J., has been incorporated with capital stock of \$50,000 to manufacture tools and other mechanical products. Manufacturing for the present will be done by contract, commitments already having been taken for the work. Leo J. Schlitzer, 36 Morton Street, Paterson, N. J., is secretary.

The Satisfax Mfg. Co., Columbia, S. C., has been organized to manufacture mechanical equipment. Patents have been applied for on its chief product and, when granted, the work will be let out to contract. Joseph Norwood, Liberty Bank Building, Columbia, S. C., represents the company.

The Marion Tool Works, Marion, Ind., has been organized as a subsidiary of the Chicago Railway Equipment Co., Chicago, and will manufacture a high-grade tool. No building will be done, since manufacturing is to be handled through the Railway Equipment Co. The tools will be made from Crecoite steel, a newly developed product of the company. E. F. Leigh is general manager.

The Chausse Oil Burner Co., 206 Lincoln Building, Detroit, has been organized to take over the business formerly conducted by the W. G. Chausse Co., and will manufacture oil burners and kindred equipment for railway, industrial and domestic service. It will build a part of the necessary equipment, but some work will be done by contract. It will

be in the market for equipment at a later date, but present needs have been filled. W. McK. White is president.

Skinner & Leary Co., 19-25 Commercial Street, Newark, N. J., has been organized to take over the business of a partnership which has been operating in the manufacture of freight elevators. Business will be conducted as formerly, the only change being from partnership to individual ownership. Charles A. Hamley heads the company.

The Edgeworth Steel Co., 92 Washington Street, North Boston, recently organized to manufacture iron and steel products, will for the present act as jobber, acting as agent for Niagara machines and tools and for Chicago steel brakes. Its warehouse is located at Holyoke, Mass. The company is successor to Fitz, Dana & Co. W. W. Hanson and D. W. Stressenger head the company.

The New Jersey Twin Hoist Co., Trenton, N. J., organized to manufacture hoisting machinery, will have its work done through Wm. H. Thropp's Sons Co. The latter is erecting a building to be used exclusively for this work. The machinery will be installed and the plant will be ready for quantity product within a couple of months. James W. West heads the company.

The Highway Signal Co., Inc., 802 South Seventh Street, Louisville, Ky., has been organized as successor to the Sentinel Mfg. Co., to manufacture metal signal devices. Immediate manufacturing will be done under contract. E. W. Carter is president; Harvey White, vice-president, and Tracy Girdler, secretary-treasurer.

The Rooker & Barron Mfg. Co., 53 Crane Street, Newark, N. J., has been organized to manufacture radio equipment. It has sufficient facilities to take care of its own work for the present, but expects at a later date to have work done by contract. E. H. Barron heads the company.

The Lawler Machinery Co., Inc., Inter-Southern Building, Louisville, Ky., has been organized to deal in general machinery, handling saw mill, planing mill, machine shop and conveying machinery in particular. D. W. Lawler is president.

The North Ward Radio Co., 236 Halsey Street, Newark, N. J., has been organized with capital stock of \$25,000, to act as jobber and distributor for manufacturers of radio equipment. Bernard Reichman heads the company.

The United States Maillevator Co., Proctor Building, Yonkers, N. Y., has been organized to manufacture private mail elevators. Steel parts are to be made under contract and motors and electrical equipment will be handled through the Westinghouse Electric Co. Activities of the new company will be confined to assembling. D. W. Worum is president.

Plant Activities

The Federal Signal Co., Albany, N. Y., will build a new foundry as the initial step to increasing its plant facilities. This announcement came following the receipt of a contract from the Ford Motor Co. for \$250,000, in piston castings.

The British Empire Steel Corporation has made a 10 per cent wage increase at its plant in Sydney, N. S.

The Niles-Bement-Pond Co., Philadelphia, is operating at capacity, with heavy orders on hand from railroads and railroad equipment manufacturers.

The Michigan Brass & Iron Works, Lansing, Mich., have resumed operations at their plant, recently interrupted by fire, causing considerable damage in a number of departments. The plant sections will be rebuilt.

The Eastern Steel Co., Pottsville, Pa., is arranging to advance from a two-shift to three-shift operating schedule at its blooming mill. Two extra shifts recently were established.

The Cleveland Wire & Cable Co., East Cleveland, is taking on additional workers. An effort is being made to secure laborers.

In accordance with a decision by the United States Railroad Labor Board, the New York Central Railroad Co. will operate its shops on an hourly basis instead of piece-work schedule heretofore prevailing. More than 9000 men will be affected.

The Hayes-Ionia Co., Ionia, Mich., manufacturer of automobile bodies, is arranging for immediate increased operations. Commencing in April, additions will be made in the working force until the present quota has been practically doubled.

The Pennsylvania Railroad Co. is curtailing operations at its South Bend, Ind., shops and practically all work will be transferred to the division shops at Logansport, Ind. About 115 employees of the South Bend works have been moved to the Logansport shops, and 75 men have been furloughed, including machinists, car men, roundhouse men and others.

Industrial Finances

The Packard Motor Car Co. will retire all outstanding bonds on April 15. The bonds being called are those outstanding from an issue of \$10,000,000 due in 1931 and issued April 15, 1921. The Packard company will have outstanding after April 15, preferred stock of \$14,676,200 par value and \$23,770,200 par value common stock, including the 100 per cent common stock dividend recently declared.

The Bower Roller Bearing Co., Detroit, in its annual statement shows a net surplus on Dec. 31, of \$25,270, as compared with a loss of \$11,067 at the end of 1921. Assets and liabilities totaled \$824,360 as compared with \$822,479 the previous year. Total current assets, which in 1921 amounted to \$487,285, increased to \$507,082.

Net profits of the Timken Roller Bearing Co. for 1922 were \$7,724,029, after charges, depreciation and Federal taxes. This is equivalent to \$4.63 per share earned on the 1,200,000 shares of outstanding, no par value stock. Manufacturing profit, exclusive of depreciation, amounted to \$10,925,159, and surplus as of Dec. 31, 1922, was \$10,829,020. President H. H. Timken in his report to stockholders said: "The volume of our business during 1922 was materially in excess of any previous year, and, from present indications, our 1923 volume will exceed that of 1922. Properly to take care of our increased bearing business, we are now adding materially to our equipment, both at Canton and Columbus, and are putting up additional buildings at Canton, all of which will give us a very material increase in output."

The Westinghouse Air Brake Co. and subsidiaries report for 1922 a balance available for dividends of \$6,964,915, as compared with \$1,412,490 in the preceding year. After allowing dividends there was a surplus of \$3,175,034, as against a deficit in 1921 of \$2,668,984. The profit and loss surplus as of Dec. 31, last, stood at \$15,183,985 against \$12,931,102 on Dec. 31, 1921.

The Newton Steel Co., Youngstown, has declared a quarterly dividend of 60c. per share on the new non-par value common stock.

Net earnings of the Sharon Steel Hoop Co., Sharon, Pa., for the first quarter of 1923, are reported at the rate of \$3 per common share annually, not considering any dividend requirement.

The Watson Truck Corporation, Canastota, N. Y., formed as a reorganization of the Watson Products Corporation in 1920 and placed in the hands of a receiver in friendly action at that time, did a business of over \$600,000 in 1922. Receivership was lifted Jan. 15, 1923, and a statement of that date shows net worth of \$900,000, above all liabilities, after allowing for depreciation. All assets now have passed to the new corporation.

The Blaw-Knox Co., Pittsburgh, reports the largest amount of unfulfilled business on its books in the history of the company. The company has declared the regular quarterly dividends of 1 1/4 per cent on the preferred and 2 per cent on the common stock, both payable May 1, to stockholders of record April 20.

The Wagner Electric Corporation, St. Louis, in 1922 earned \$213,484, or \$2.73 a share on the outstanding common stock, after \$52,500 dividends on the preferred stock had been paid. Of the net operating profit of \$265,924, \$162,454 was applicable to the period before Aug. 11, when the company was reorganized, and \$103,479 to the period following the reorganization.

A shrinkage in the profit and loss surplus of the Greenfield Tap & Die Co., Greenfield, Mass., from \$524,423 to \$324,198 is shown in the 1922 statement. At the close of last year the net working capital stood at \$2,402,854, whereas at the close of 1921 it was \$2,518,902. The company's cash position was considerably improved during the year. President Frederick H. Payne in a statement to the stockholders intimates business is much better than in 1922, and steadily improving.

At the recent meeting of the Cambria Steel Co. stockholders in connection with the sale of the property to the Bethlehem Steel Co., it was brought out during discussion that \$181 a share would be the basis of settlement with the Cambria shareholders.

Allowing for taxes and all operating profits, the Steel & Tube Co. of America last year showed a net profit of \$4,500,062, contrasted with one of but \$52,707 in 1921, and \$11,142,341 in 1920. Interest charges last year were practically the same as in the previous year, but the company charged off \$1,541,918 for depreciation, whereas in 1921, this item was held down to less than \$750,000. Even with the large increase in the depreciation item, 1922 showed a net income of \$472,420. In 1921 there was an operating loss of more than \$2,570,000.

Machinery Markets and News of the Works

BUYING CONTINUES ACTIVE

Railroads and Automobile Companies Lead in Tool Purchases

Orders Are Widely Scattered, However, All Classes of Industrial Plants Taking Equipment

Machine-tool trade continues very active, with the railroads and automobile companies predominating in the buying, but a satisfactory feature of current demand is that orders are coming from widely distributed sources and from all classes of metalworking plants. Advances in prices, which have been general among machine-tool builders, have disturbed some buyers, but apparently have not caused any noticeable check in the demand. A good many of the orders placed in the last week of March, however, were on quotations submitted before the price changes became effective.

The Illinois Central at Chicago has bought fully \$150,000 worth of tools, with about that much more pending; the Union Pacific has purchased a number of machines; the Chicago & Northwestern is expected to add other tools to the list it put out a week or two ago; the Burlington is working up an extensive list and the Elgin, Joliet & Eastern, which recently suffered a

fire loss in its shops, will probably hasten its purchases of tools on a list now pending.

In the East the railroad buying has been led by the Norfolk & Western, which has closed for a large list, some 30 or 40 tools. The Southern Railway is inquiring for 10 machines from its purchasing office in Washington and the Maine Central has placed orders on a recent small list. The Pennsylvania Railroad is inquiring for two large tools.

Orders placed by the F. B. Stearns Co., Cleveland, for automobile manufacture include one for 15 turret lathes and another for four drilling machines. The Chevrolet Motor Car Co. has purchased 20 multiple spindle drilling machines and the Oakland Motor Car Co. has purchased six turret lathes. The Ford Motor Co. continues to buy in small lots, especially for its Detroit and Hamilton, Ohio, plants. The American Can Co. has placed an order for 12 milling machines. The Andrews Steel Co. and the Ohio Knife Co. have been buyers at Cincinnati. The General Electric Co. continues one of the most active industrial buyers in the East.

Demand for mill equipment and other heavy machinery continues strong in the Pittsburgh district. The Metal & Thermit Corporation has ordered six sheet mills for its new Pacific Coast plant.

New York

NEW YORK, April 3.

MACHINE-TOOL companies having their headquarters in New York, but doing business throughout other sections of the country, report that, while buying of tools in the East has become fairly satisfactory, the bulk of their orders continues to come from other district offices. The past week has brought a slowing down in some lines, due possibly to recent price advances, but this is a spotty condition, as other offices report a steadily increasing volume regardless of higher quotations.

The large list of the Norfolk & Western Railroad has been closed. Other railroad buying includes several machines bought by the Maine Central, among which were two 5-ft. radial drills, two 50-ton bushing presses, a side-head boring mill and a 36-in. planer. The Norfolk & Western included in its purchases such heavy machines as a 48-in. car wheel borer, an axle lathe, a 600-ton wheel press and a 36-in. planer. The American Locomotive Co., New York, has been buying steadily of late and the General Electric Co. is again in the market for tools, mostly turret lathes and drilling machines, for its Schenectady plant, but is doing very little buying at its other plants.

An inquiry has been sent out by the Southern Railway, whose purchasing office is in Washington, for 10 machines and the Pennsylvania Railroad has inquired for a 48-in. planer and a 42-in. vertical punch.

The Southern Railway list is as follows:

- One set of 10-ft. bending rolls.
- One 20-in. drill press.
- One 500-lb. steam hammer.
- Two 36-in. vertical punches.
- One 16-in. engine lathe.
- One 18-in. engine lathe.
- One 8-in. turret lathe.
- One 42-in. vertical turret lathe.
- One 90-in. driving wheel lathe.

The Municipal Gas Co., 124 State Street, Albany, N. Y., has plans for a one-story general machine and repair shop, 32 x 60 ft., on Broadway. Carl H. Graf is vice-president and general manager.

A new ice-manufacturing and refrigerating plant, with daily capacity of 200 tons, will be erected by the Lion Brewery of New York, at Ludlow and Whitlock Avenues, estimated to cost \$400,000 with machinery. This is one of a series of such plants which the company will build. Adolph G. Koenig, 405 Lexington Avenue, is architect.

The Board of Public Works, Poughkeepsie, N. Y., will take bids until April 12 for a crane, with I-beam track and trolley, in connection with extensions and improvements in the municipal pumping plant. Hazen & Whipple, 30 East Forty-second Street, New York, are consulting engineers. Thomas F. Lawlor is superintendent.

Fire, March 28, destroyed a portion of the works and property of the Rosoff Sand & Gravel Co., Marlboro, N. Y., with loss estimated at \$50,000. It is planned to rebuild.

A two-story automobile machine repair and service building, 119 x 130 ft., for company trucks and cars, will be built by the Knickerbocker Ice Co., 45 East Forty-second Street, New York, at 452-60 West 167th Street, estimated to cost \$50,000. John D. Hart, 1039 Fox Street, Bronx, is architect.

Work will commence at once on a new building at the plant of the Alexander Smith & Sons Carpet Co., Yonkers, N. Y., for the manufacture of special machinery and parts as in the weaving mills at the plant, estimated to cost \$200,000. A list of machine tools and other equipment to be installed will soon be arranged. Contract has been let to the Barney-Ahlers Construction Corporation, 110 West Fortieth Street, New York.

A one-story power house will be constructed by the Dry Milk Co., 13-15 Park Row, New York, in connection with its proposed factory at Columbus, Wis., estimated to cost \$225,000. Inquiries are out for machinery. L. G. House is chief engineer.

The American Water Works & Electric Co., 50 Broad Street, New York, has acquired the Keystone Power Corporation, operating at Kane, Pa., and vicinity; the Edison Electric Illuminating Co., and the Cumberland Electric Railway Co., and plans for extensions and improvements in the power plants and systems. A portion of a \$2,000,000 pre-

federal stock issue will be used for the acquisition and expansion. H. Hobart Porter is president.

The Bullock Mfg. Co., 356 West Fortieth Street, New York, manufacturer of electric lighting fixtures, has acquired two four-story buildings, 352-54 West Fortieth Street, adjoining, 33 x 100 ft., for extensions. Thomas H. and Harry Bullock head the company. Additional equipment will be installed.

The Superintendent of Lighthouses, Staten Island, N. Y., will take bids until April 12 for two four-drum, double cylinder steam hoisting engines, each with lifting capacity of 27 tons on a three-part fall, with rope speed of 75 ft. per min. and 125 lb. pressure. Also, until April 23, for fifty acetylene flashers or regulators for control of lights on buoys.

The Miller Rubber Co., 256 West Fifty-fifth Street, New York, manufacturer of automobile tires, will commence the erection of an addition to its plant at South Akron, Ohio, four stories, 97 x 285 ft., estimated to cost \$300,000 with machinery.

The Cox Brass Mfg. Co., Van Woert Street, Albany, N. Y., and the Cox Brothers Mfg. Co., have been merged under the latter name to extend the business, including the manufacture of brass and other metal automotive products, bumpers, etc. Plans have been perfected for the rebuilding of the section of the local plant recently destroyed by fire.

The Ohio Brass Co., 50 Church Street, New York, manufacturer of electrical and mechanical brass goods, will make extensions and improvements at its plants at Mansfield, Ohio, and Toronto. Plans are also in preparation for enlargements at the works of the Ohio Insulator Co., Barberton, Ohio, with the installation of considerable machinery.

The Federal Signal Co., Albany, N. Y., is planning for enlargements in a number of departments. The initial work will include the construction of a new foundry for the manufacture of piston castings, to cost in excess of \$45,000.

The Leonard Sheet Metal Works, foot of Ravine Road, Jersey City, N. J., has plans for the erection of a one-story addition to cost about \$25,000.

The Elizabeth Sash, Door & Supply Co., 663 Livingston Street, Elizabeth, N. J., is planning to immediately rebuild its plant at 906 Westfield Avenue, destroyed by fire, March 27, with loss estimated at \$200,000. John C. Lemmeding is president.

The manual training department will be installed in the new high school now in course of erection at Swedesboro-Pitman, N. J., estimated to cost \$230,000. The Board of Education, Pitman, is in charge.

The Steel Equipment Co., Avenal, N. J., manufacturer of steel furniture, has awarded contract to the Levering & Garrigues Co., New York, for a two-story addition, 80 x 260 ft.

Fire, March 26, destroyed a portion of the foundry of the Bolte Piano Plate Co., Middlesex Borough, near Bound Brook, N. J., with loss reported at \$25,000. Harry Bolte heads the company.

A manual training department will be installed in the new high school to be erected at Clifton, N. J., estimated to cost \$600,000. Lee & Hewitt, Paterson, N. J., are architects.

A. G. Schoonmaker & Sons, Inc., 25 Church Street, New York, is in the market for belted and steam-driven air compressors.

The Spa Springs Ice Co., Spa Springs, near Woodbridge, N. J., will commence the erection of a one-story ice-manufacturing plant, 68 x 142 ft., estimated to cost \$130,000 with machinery. H. M. K. Hansen and Paul D. Kingsberry head the company.

A manual training department will be installed in the new senior and junior high school to be erected at Bound Brook, N. J., estimated to cost \$250,000, for which John N. Pierson & Sons, 175 Smith Street, Perth Amboy, N. J., architects, will prepare plans.

The Public Service Electric Co., Public Service Terminal, Newark, is perfecting plans for a new generating plant in the meadow district, estimated to cost \$25,000,000. The initial development will call for an investment of \$12,500,000. The Public Service Corporation, the parent organization, is arranging for an increase in capital from \$50,000,000 to \$100,000,000, for this and other expansion. Thomas N. McCarter is president.

John J. Jackson, 156 Astor Street, Newark, operating a metal works, will commence the erection of a one-story addition to cost \$25,000.

Hurley & Johnson, 284 Thomas Street, Newark, manufacturers of forgings, are in the market for a 15 to 20 hp. horizontal steam engine.

The Newark Metal Mfg. Co., Newark, has leased an additional floor in the building at New Jersey Railroad Ave-

nue and Hamilton Street, for extensions. Additional machinery will be installed.

The Thatcher Furnace Co., 41 St. Frances Street, Newark, has awarded contract to David B. Mulcahy, 97 Washington Street, for a one and three-story addition, 50 x 122 ft. and 34 x 84 ft., to cost about \$15,000 and \$40,000, respectively.

The Vacuum Oil Co., 61 Broadway, New York, manufacturer of refined oils, has awarded contract to the Turner Construction Co., 242 Madison Avenue, for two buildings for a plant at Paulsboro, N. J., three stories, 100 x 120 ft., and two stories, 60 x 60 ft., respectively.

New England

BOSTON, April 3.

BUSINESS in the machine-tool market the past week continued active, but with less demand than the previous week. The most noteworthy feature is the increasing activity of new equipment. A sizable turnover in new and used single machines changed hands, as well as a new 30-ton crane, purchased by a Worcester textile machinery builder. In connection with recent business closed, it develops that manufacturers of lathes and planers who recently put into effect an advance of 10 per cent in prices, have reduced quotations that much to close business. New inquiries include pipe cutting machinery, lathe, shaper, upright drill, bolt cutter and hack saw equipment from a Massachusetts public utility company.

Of the week's purchases, that of the Maine Central Railroad is the most important, involving 18 tools as follows: One 36-in. planer, two 22 x 46-in. gap lathes, one 32-in. shaper, two 5-ft. radial drills, one 18-in. x 8-ft. geared head lathe, one 36 x 44-in. boring mill, two 2-in. single bolt cutters, two pipe machines, two No. 4 punch and shears, two motor-driven grinders, and two large motor-driven hack saws. The largest single tool transaction is a 60-in. open side planer, purchased by the E. D. Jones Co., Pittsfield, Mass. Other sales include good-sized new multiple spindle drill equipment by a Providence concern; new bending roll equipment, which went to a Worcester manufacturer; new shaft straightening machinery purchased by the Saco-Lowell Shops, Boston; used 12 spindle machines, which went to a New Jersey company, four used upright drills and a used planer, and a small battery of used screw machines.

The New York, New Haven & Hartford Railroad contemplates the erection of a one-story repair shop at Providence. Details have not been worked out.

Plans are being drawn for a two-story, 40 x 100 ft. manufacturing unit for the Portsmouth Automobile Body Co., Portsmouth, N. H. T. J. Boyan is manager.

The Worcester Pressed Steel Co., Barber Avenue, Worcester, Mass., will soon start work on a one-story, 21 x 126 ft. annealing plant.

Plans are being revised for a two-story, 40 x 50 ft. shop, to be erected by the Boston & Maine Railroad at Charlestown, Boston, Yard No. 5.

Bids have been asked by the A. O. Wilson Structural Co., Concord Avenue, Cambridge, Mass., on a one and two-story, 60 x 75 ft. manufacturing unit and office building.

The Bridgeport Iron & Metal Co., Bridgeport, Conn., has purchased the plant of the American British Mfg. Co. for \$183,250. The property includes seven and one-half acres, manufacturing units and a considerable quantity of machinery. Following the war it was valued at \$1,000,000.

The Hopedale Mfg. Co., Milford, Mass., textile machinery, contemplates the erection of a foundry addition to give approximately 10,000 sq. ft. additional floor space.

The Winsted Mfg. Co., Winsted, Conn., corn knives, etc., will build a 44 x 146 ft. addition, which will increase production space approximately 50 per cent.

Interests associated with the Arcade Malleable Iron Co., Worcester, have purchased from the Hendee Mfg. Co., Springfield, Mass., the brass foundry formerly operated by the Harley Co. The plant will be renovated and equipped for malleable iron castings work and probably operated under the firm name of the Springfield Malleable Iron Co. Details of organization have not been worked out. The new company has no connection with the Arcade Malleable Iron Co.

The Newark Wire Cloth Co., 224 Verona Avenue, Newark, N. J., has acquired the plant and business of the Moss & Whyte Co., 95 Sidney Street, Boston, manufacturer of wire cloth and kindred products, and will merge the property with its organization. It is purposed to remove the business at Cambridge, Mass., to Newark, where an addi-

tion will be built, 100 x 300 ft., estimated to cost \$50,000. A. A. Campbell is secretary of the purchasing company.

The Blackstone Valley Gas & Electric Co., Woonsocket, R. I., has awarded a general contract to Stone & Webster, Inc., Boston, for a new power house to cost \$200,000, including transmission line.

The Atlantic Works, 80 Border Street, Boston, operating a shipbuilding and repair plant, will install a 6000-ton steel floating drydock, recently purchased from the Shipping Board, to include repair plant facilities, motors, gearing, etc.

The Foxboro Co., Foxboro, Mass., manufacturer of recording instruments, has commissioned Monks & Johnson, 99 Chauncey Street, Boston, engineers, to prepare plans for a four-story addition, 60 x 160 ft.

The Eastern Connecticut Power Co., Hartford, Conn., will make extensions in its electric power plants and system. A portion of a \$3,000,000 bond issue, now being sold, will be used for the expansion. R. W. Perkins is president.

The Baker-Payne-Voy Co., 1177 Adams Street, Dorchester, Boston, operating a sheet metal works, is inquiring for a 8-ft. power shear.

The New Haven Sherardizing Co., Hartford, Conn., manufacturer of steel mandrels, etc., plans the establishment of a second unit at its new works at Akron, Ohio.

A manual training department will be installed in the new high school to be erected at Hudson, Mass., estimated to cost \$100,000, for which an architect will soon be selected.

A manual training department will be installed in the high school to be erected at Watertown, Conn., to cost in excess of \$125,000, for which Fred A. Webster, 51 West Main Street, architect, has been commissioned to prepare plans.

The Cumberland County Light & Power Co., Portland, Me., is planning the erection of a new power house.

The Philbrick-Booth Foundry Co., Homestead, Avenue, Hartford, Conn., will install a 5-ton traveling crane, hand-operated.

A manual training department will be installed in the proposed junior high school to be erected at Lewiston, Me., estimated to cost \$300,000.

The Saco-Lowell Shops, 77 Franklin Street, Boston, manufacturers of textile machinery, are planning for the early operation of their new branch plant at Charlotte, N. C., primarily for parts production and repair work.

Philadelphia

PHILADELPHIA, April 2.

S. REDIFER & CO., 139 Race Street, Philadelphia, manufacturer of iron shoe lasts, has awarded a contract to the A. Raymond Raff Co., 1635 Thompson Street, for the erection of a two-story and basement plant, 50 x 100 ft., estimated to cost \$40,000. Clarence E. Wunder, 1415 Locust Street, is architect.

The Alfred J. Forschner Co., Real Estate Trust Building, Philadelphia, machinery dealer, is inquiring for three steam shovels, with $\frac{1}{4}$ -yd. dipper, $\frac{3}{4}$ -yd. dipper and 1-yd. dipper, respectively, caterpillar tread, power steer, with boilers; also for one rotary screening outfit complete, handling material $\frac{1}{2}$ to $1\frac{1}{2}$ -in.

The Philadelphia Last & Pattern Co., 316 Cherry Street, Philadelphia, has plans for the erection of a new two-story and basement building for the manufacture of iron shoe lasts and patterns, 50 x 105 ft. Carson & Carson, 22 South Fifteenth Street, are architects.

The Electric Foundry & Engineering Co., State Road, Tacony, Philadelphia, is planning for the installation of a 5-ton electric hoist.

The Philadelphia Electric Co., Tenth and Chestnut Streets, Philadelphia, has plans for a new power house at Ninth and Sansom Streets, in connection with a general expansion program, estimated to cost \$100,000. It has acquired 14½ acres on the Delaware River waterfront, vicinity of Westmoreland Street, for later plant expansion.

Motors, ovens, conveying and other equipment will be installed in the new confectionery plant to be erected by the Brandle & Smith Co., Eighth and Dauphin Streets, Philadelphia, on property recently acquired at Fifth and Bristol Street, estimated to cost \$350,000. The William Steele & Sons Co., Sixteenth and Arch Street, is engineer.

The Armstrong Cork Co., Liberty and Mary Streets, Lancaster, Pa., manufacturer of insulation products etc., is taking bids on a general contract for a three and six-story addition to its plant at Camden, N. J., 65 x 135 ft., estimated to cost \$350,000 with machinery. H. Boettcher, Neffsville Street, Lancaster, is architect.

The Margargee Paper Co., Modena, Pa., will commence the erection of a new plant on property recently acquired

at Edgely, Pa., consisting of two main units on site 130 x 200 ft., with power house and machine shop, to cost in excess of \$500,000 with machinery.

The Pennsylvania Lawn Mower Works, 1615 North Twenty-third Street, Philadelphia, has awarded contract to the A. Raymond Raff Co., 1635 Thompson Street, for a one-story foundry, 110 x 220 ft., at Primos, Pa., estimated to cost \$150,000.

The Pennsylvania Railroad Co., Philadelphia, has preliminary plans for a new one and two-story ice and cold storage plant at Huntingdon, Pa., estimated to cost \$500,000 with equipment. William H. Cookman is company architect.

The Aviation Depot, United States Army, Middletown, Pa., has acquired about one-half of the local aviation field and will build two steel hangars, machine and repair shop, and parts department. Major R. M. Jones is the commanding officer.

The United States Gauge Co., Sellersville, Pa., is planning for the installation of lathes, punch press and universal grinder.

The Pennsylvania Water & Power Co., Holtwood, Pa., is planning for the erection of a power house in the vicinity of York, Pa., with new transmission line. Two new turbine units will be installed at the Holtwood plant and auxiliary machinery, to cost \$750,000. J. L. Rintoul is treasurer.

John Fritges, Parsons, Pa., has acquired local buildings, heretofore held by the Trethaway Estate, and will establish a plant for the manufacture of sheet metal, tinware and other metal goods. A company will be organized.

A power plant will be constructed by the Viscose Co., Marcus Hook, Pa., in connection with its new artificial silk mill on property recently acquired at Holmesburg Junction, Pa., estimated to cost \$3,000,000.

The A. B. C. Porch Enclosure Co., 1838 Germantown Avenue, Philadelphia, manufacturer of screens, wire doors, etc., has plans for a three-story and basement factory, 60 x 100 ft., at Fourth and Berks Streets, estimated to cost \$135,000 with equipment. A. E. Dunlap, 7203 Oak Avenue, is architect.

The Bell Telephone Co., Harrisburg, Pa., will install a power plant in its new building to be erected at Pine and Court Streets, estimated to cost \$2,000,000.

A manual training department will be installed in the three-story and basement high school addition, to be erected on Lansdowne Avenue, Upper Darby, Pa., estimated to cost \$200,000. Horace W. Castor, Stephen Girard Building, Philadelphia, is architect.

The Edison Electric Light Co., Lancaster, Pa., in conjunction with other power interests, has plans for a new hydroelectric power plant on the Susquehanna River, near Conowingo, Md., estimated to cost more than \$1,000,000 with machinery.

The Aluminum Pigment & Products Co., Bowmansville, Pa., is said to be planning for the purchase of pulleys, transmission equipment and pumping machinery, for installation at its plant.

Baltimore

BALTIMORE, April 2.

D. C. ELPHINSTONE, 408 Continental Building, Baltimore, machinery dealer, is inquiring for a three-drum hoisting engine; two 10-ton, 3-wheel steam rollers; one cable way, about 620 ft. long, with maximum load capacity of 5 tons, and one steam pile hammer, Vulcan type.

A one-story power house will be built by the Hobart Mfg. Co., Concord, N. C., in connection with its new textile mill estimated to cost \$400,000. C. A. Cannon is one of the heads of the company.

The Board of Commissioners, District of Columbia, Washington, will take bids until April 11 for machine and automobile shop equipment and woodworking machinery, for installation in a municipal repair works, and until April 9 for 2713 tons of cast iron water pipe and specials.

The Downie Co., Inc., Portsmouth, Va., recently organized with a capital of \$200,000, has acquired a building at Chestnut and Duke Streets, and will remodel the structure to manufacture motor-driven plows, parts, cultivators and other agricultural equipment. Charles E. Downie is president, and K. D. Ransom, Newport News, Va., treasurer.

Fire, March 21, destroyed a portion of the plant of the Elk Furniture Co., Lexington, N. C., with loss estimated at \$150,000 including machinery. It is planned to rebuild.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until April 10 for electric measuring instruments, including voltmeters, ammeters and wattmeters, for the naval station, Annapolis, Md., schedule 666; also for two 3-stage air compressors, and two 4-stage helium

compressors and spare parts, for the naval air station at Lakehurst, N. J., schedule 676.

The DeVane-Hall Lumber Co., Huske Building, Fayetteville, N. C., is in the market for machinery for a new lumber mill, including power equipment. The company was organized recently with a capital of \$100,000. John M. DeVane is president.

The Hanks Foundry Co., Rome, Ga., manufacturer of stave castings, etc., will build a one-story addition to increase the output about 25 per cent.

Fire, March 28, destroyed a portion of the plant of the Maryland Toy Mfg. Co., Baltimore, with loss estimated at \$25,000. It is planned to rebuild immediately. Percy Harrison is general manager.

A manual training department will be installed in the new two-story and basement high school to be erected at Clarendon, Va., estimated to cost \$190,000. Upman & Adams, Woodward Building, are architects.

The DuPont Motors, Inc., Wilmington, Del., is planning for extensions for increased production of a new model automobile, recently perfected. The company is operating a branch plant at Moore, Pa., and proposes to remove this factory to the main Wilmington works. A fund of \$800,000 is being arranged, to be used in part for the expansion. E. Paul DuPont is president.

The Crawford Mill Supply Co., 438 Main Street, Winston-Salem, N. C., is in the market for two electric generators, 200 to 300 kw., and 75 to 125 kw., respectively, the last noted direct-connected to steam engine, with switchboard, instruments and auxiliary apparatus complete.

The Sandhill Power Co., Lakeview, N. C., is considering plans for the installation of a new hydroelectric power house. Work is now in progress on an auxiliary steam-operated power station.

The Chemical Engineering & Foundry Co., Atlanta, Ga., recently organized, has acquired the plant and business of the Pratt Engineering & Machine Co. Plans are being perfected for extensions for the manufacture of special machinery and parts. E. Josephs is president and treasurer.

The City Board of School Commissioners, Charleston, S. C., is taking bids on a general contract for the erection of an annex to the Burke Industrial School. Simons & Lapham, 42 Broad Street, are architects. Equipment bids will be called later.

T. C. Coleman, Ridgeway, Va., and J. B. Coleman, Martinsville, Va., have perfected plans for the organization of a company to build and operate a plant at Pulaski, Va., for the manufacture of furniture. The company will be capitalized at \$250,000, paid in. City officials at Pulaski have given a site for the factory, which is estimated to cost \$150,000. It will include a machine shop and power house. Plans will be prepared at once.

The Taylor-Parker Co., Water Street and Commercial Place, Norfolk, Va., machinery dealer, is in the market for a 50-hp. boiler, portable type.

The Wilmington Fibre Specialty Co., New Castle, Del., has awarded contract to the Austin Co., Philadelphia, for a three-story structure, 64 x 108 ft., and two one-story buildings, 86 x 168 ft. and 30 x 100 ft. The machinery installation will include hydraulic presses, fiber-sheet making equipment, rolls, pumping machinery, etc. Additional equipment will also be installed in the power plant. The project will cost \$250,000.

H. M. Sumner, Sylvester, Ga., has acquired a building and will remodel the structure for a new ice and cold storage plant, with capacity of about 60 tons.

The Marshville Mfg. Co., Marshville, N. C., will build an electric power house in connection with a new textile mill estimated to cost \$100,000. S. M. Robinson is president.

The General Auto Truck Co., Virginia Avenue and Twenty-first Street, N. W., Washington, will erect a new four-story parts, repair and service building, 100 x 100, estimated to cost \$80,000.

The Maryland Meter Works, 224 Holiday Street, Baltimore, has awarded a contract to the West Construction Co., American Building, for a seven-story addition, 38 x 83 ft., estimated to cost \$100,000. Edmund S. Dickey is general manager.

The Quartermaster Department, Quantico, Va., will receive bids until April 6 for pneumatic tools for stone-cutting and similar service.

Electrically-operated pumping and auxiliary equipment will be installed by the Board of Commissioners, Williamsport, Md., in connection with the installation of a new waterworks plant, estimated to cost \$100,000. Norton, Bird & Whitman, 615 Munsey Building, Baltimore, are engineers.

The Huntley-Richardson Lumber Co., Bucksport, S. C., is planning the erection of a new hardwood mill estimated to

cost \$80,000. Building and machinery bids will be called this month. D. V. Richardson is secretary and treasurer.

J. G. Reitzel, High Point Machine Works, High Point, N. C., is planning to purchase equipment for making plain, square lock-seam iron pipe, material to be about 24-gage galvanized steel.

The Atlantic Coast Line Railway Co., Wilmington, N. C., plans the erection of additions to its car and locomotive repair shops at Wilmington, Rocky Mount, N. C., and Montgomery, Ala., estimated to cost more than \$1,000,000, with machinery.

E. L. Thrift, Cobbtown, Ga., is making inquiries for a 15-hp. boiler and engine, with auxiliary equipment, high-pressure type.

The Metal Window Mfg. Co., Hermitage Road, Richmond, Va., has been organized by officials of the Peerless Metal Window & Shutter Corporation to operate a plant for the manufacture of metal sash, doors, etc. Charles T. Norman is president.

Pittsburgh

PITTSBURGH, April 2.

MACHINE tool business still is quiet in this district, but some in the trade note a quickening in inquiry and find encouragement. Cranes and other heavy equipment show relatively more activity, but the complaint is heard that crane orders still are much fewer than the inquiries. Crane builders have been withdrawing quotations pretty steadily in the past few weeks, and those that have not been withdrawn are being limited as to date of acceptance because of the increased costs involved in the advance recently announced in steel casting prices.

The Reliance Coke & Furnace Co., Frick Building, Pittsburgh, which is modernizing its Claire furnace at Sharpsville, Pa., to line it up more adequately with the new blast furnace, recently closed for two Mesta vertical blowing engines of the long cross head type, one 46-in. x 84-in. x 60-in., and the other 84-in. x 84-in. x 60-in.

The Metal & Thermit Corporation, New York, has awarded six sheet mills for its new Pacific Coast plant to the National Roll & Foundry Co., Avonmore, Pa., and the drives for these mills to the United Engineering & Foundry Co., Pittsburgh. Other equipment, with the exception of the bar mill, installation of which has been deferred, will probably be placed in a few days.

The National Tube Co., which recently closed for three air compressors with the Chicago Pneumatic Tool Co. for its new tube mills at Gary, Ind., is expected to place shortly two heavy hammers, one 12,000 lb. and the other 6,000 lb. for that plant.

The Union Electric Steel Corporation, the new name of the Union Electric Steel Co., Carnegie, Pa., is planning an increase in steel melting (electric) capacity, which will mean additional auxiliary equipment.

The Koppers Co., Pittsburgh, in connection with its contract for a new by-product plant for the Trumbull-Cliffs Furnace Co., Warren, Ohio, has issued an inquiry for the power equipment and will shortly ask prices on cranes, pushers, etc.

The McClintic-Marshall Co., Pittsburgh, has placed two 3-ton cranes for its Pottstown, Pa., works, with Maris Brothers Inc., Philadelphia. The Inland Steel Co. has placed 13 cranes, in connection with its steel works extension, with the Alliance Machine Co. The award includes one ladle crane and 12 of a standard type. The Jones & Laughlin Steel Corporation is looked upon as a probable buyer of cranes for its Southside, Soho and Aliquippa plants when the Government has acted upon its petition for permission to make river improvements near these works.

The Sheet Metal Specialty Co., Follansbee, W. Va., has commissioned R. M. Trimble, Ferguson Building, Pittsburgh, architect, to prepare plans for two new buildings, each two-stories 82 x 160 ft., and 42 x 20 ft., respectively, to cost about \$110,000 with equipment. The last noted will be used as a galvanizing works.

The Jacobson Gas Engine Co., Warren, Pa., has tentative plans for rebuilding the portion of its plant destroyed by fire March 23 with loss reported at \$125,000 including machinery. The Warren Machine Gear Products Co., occupying an adjoining site, also sustained a loss estimated at \$50,000. The latter works will be rebuilt.

The Oberndorf Mfg. Co., 7509 Thomas Boulevard, Pittsburgh, manufacturer of iron and brass plumbing goods, will build a one-story foundry on Thomas Boulevard to cost \$17,000, exclusive of equipment.

The Trabold Motors Co., Swank Building, Johnstown, Pa., is considering the erection of a one-story automobile manufacturing plant at Cambria, Pa., 100 x 250 ft., estimated to cost \$150,000. A. G. Trabold is president.

The West Virginia Coal & Coke Co., Elkins, W. Va., will build a one-story machine shop, 30 x 75 ft., in connection with other buildings at its properties at Norton, W. Va., estimated to cost \$50,000. G. B. Southward is chief engineer.

The Brockway Motor Truck Co., 201 South Highland Avenue, Pittsburgh, has leased the three-story building at 5123-31 Liberty Avenue, Bloomfield section, 80 x 100 ft., for the establishment of a new service and repair department.

Griffith & Rodes, Charleston, W. Va., operating a sheet-metal works, are planning to rebuild the portion of their plant recently destroyed by fire with loss of about \$30,000.

The Westmoreland Specialty Co., Grapeville, Pa., manufacturer of glass products, will commence the erection of an addition to its plant near Jeannette, Pa., one-story, 80 x 100 ft., estimated to cost \$150,000, including machinery and power equipment.

A manual training department will be installed in the proposed two-story and basement high school to be erected at Greensburg, Pa., estimated to cost \$165,000, for which plans are being prepared by N. E. Kressler & Co., Commonwealth Building, Harrisburg, Pa., architects.

The Cleveland Coal Co., Huntington, W. Va., is considering the construction of a new steel tipple at Twenty-sixth Street and the Ohio River.

The Acme Stamping & Mfg. Co., 207 Corliss Street, Pittsburgh, is planning for the installation of a double-geared press.

Electrically-operated pumping machinery will be installed in the proposed sewerage disposal plant to be constructed by the City Council, Sharon, Pa., for which a bond issue of \$200,000, is being arranged.

The Federal Motor Truck Co., Pittsburgh, has leased the building at Center Avenue and Graham Street, 60 x 140 ft., for a general parts, repair and service works.

The Wetmore-Henderson Lumber Co., Warren, Pa., is planning the establishment of a new factory for the manufacture of concrete blocks, tile, etc., with the installation of new equipment.

The Marshall Dairy Products Co., Moundsville, W. Va., has inquiries out for a 35-hp. gas engine and ammonia compressor for a 15-ton capacity ice-manufacturing plant.

A manual training department will be installed in the high school to be erected at Welch, W. Va., estimated to cost \$150,000.

Buffalo

BUFFALO, April 2.

TENTATIVE plans are under consideration by the General Castings Corporation, 577-89 Tonawanda Street, Buffalo, for rebuilding the portion of its foundry and plant destroyed by fire March 27, with loss estimated at \$50,000 including equipment.

The Newell Brass Co., Ford Street, Ogdensburg, N. Y., will erect a new one-story building, 35 x 46 ft., estimated to cost \$21,000. George E. Wilson, 55 State Street, is architect.

The Hinds Co., 107 Catherine Street, Malone, N. Y., operating a machine shop and foundry, plans the installation of drilling machine, bench milling machine, brass furnace and other equipment. J. B. Hinds is in charge.

Fire, March 24, destroyed the machine shop at the plant of the Hagerman & Wilcox Co., Syracuse, N. Y., with loss estimated at \$35,000 including equipment. It is planned to rebuild.

The Bailey Rubber Heel Co., Beverly, Mass., has acquired property at Main and Emma Streets, Binghamton, N. Y., 150 x 175 ft., as a site for a new factory with power house, estimated to cost \$90,000. D. F. Rice is general manager.

The Flaxwood Corporation, Otis Building, Watertown, N. Y., is making inquiries for pulleys, shafting, hangers and other transmission equipment for its textile mill at Theresa, N. Y.

The Charnock-Winegar Co., Buffalo, has arranged for the establishment of a machine shop for parts manufacture for printing machinery and general repairs.

The American Bridge Co., Frick Building, Pittsburgh, has revised plans for a new one-story and basement template shop at its works at Elmira Heights, N. Y., 50 x 210 ft., estimated to cost \$65,000. It will replace a structure recently destroyed by fire.

The Onondaga Pottery Co., 1858 West Fayette Street, Syracuse, N. Y., is considering the erection of an addition,

estimated to cost \$500,000 with presses, dies, power equipment and other machinery. B. S. Salisbury is president.

Motor-driven bandsaws, cutting, ripping and other machinery will be installed in the one-story addition to be erected to the lumber mill of the Queen City Development Co., Inc., 2625 Delaware Avenue, Buffalo. John R. Bookser is president.

The Hanan & Henry Motor Car Co., Ogdensburg, N. Y., is planning for the installation of an internal grinding machine, japanning oven, drill and other equipment.

The Standard Shade Roller Co., State Street, Ogdensburg, N. Y., plans the erection of a one-story addition, to cost \$45,000 with machinery. H. M. Wheaton is manager.

A manual training department will be installed in the new high school to be erected at Seneca Falls, N. Y., estimated to cost \$250,000, for which plans will soon be prepared.

A manual training department will be installed in the three-story high school, 185 x 193 ft., to be erected at Hamburg, N. Y., estimated to cost \$200,000. Frank Spangenberg, 250 Delaware Avenue, Buffalo, is architect.

The Enterprise Foundry Co., 46 Washington Street, Auburn, N. Y., manufacturer of iron castings, plans the installation of barrel sand blast equipment.

The Common Council, Liverpool, N. Y., contemplates the installation of electrically-operated pumping machinery in connection with a new waterworks system, estimated to cost \$90,000.

The Production Engineering Corporation, Canastota, N. Y., recently organized, will succeed to the plant and business of the Marvin & Casler Co., 218 Roberts Street, manufacturer of machinery, and plans extension for the production of drill chucks, tool holders, tools, etc.

Cleveland

CLEVELAND, April 2.

BUSINESS in machine tools continues very good. Price advances have resulted in the closing of some orders on which manufacturers had quotations outstanding before the advances. Considerable business continues to come from the automobile industry. The F. B. Stearns Co., Cleveland, has placed some additional orders for equipping its new automobile manufacturing unit, which include one for turret lathes placed with a Cincinnati manufacturer and four drilling machines with a Cleveland maker. The Chevrolet Motor Co. has purchased about 20 multiple spindle drilling machines, and the Oakland Motor Car Co. has closed for six turret lathes with a Cleveland manufacturer. The Ford Motor Co. continues to buy machinery in small lots. Makers of automatic screw machinery report some revival in foreign business in small lot orders from France and Spain.

A Western manufacturer of milling machines, who recently withdrew prices, has announced a 10 per cent advance. The Knight Drilling & Milling Machine Co., St. Louis, has withdrawn prices and will put an advance into effect.

The DeVilbiss Mfg. Co., Toledo, Ohio, will erect a new four-story brick and concrete factory, 80 x 600 ft., at an estimated cost of \$1,000,000.

The plant of the Victor Stove Co., Salem, Ohio, was damaged by a fire a few days ago, the loss being estimated at about \$125,000. The foundry was almost completely destroyed and the company has secured temporary quarters until this structure can be rebuilt.

The foundry of the Taplan-Rice-Clerkin Co., Akron, Ohio, manufacturer of stoves and furnaces was burned a few days ago. It was practically a new plant.

The Feilmeth-Weston Construction Co., Marion, Ohio, has been incorporated with a capital stock of \$25,000 and will build bridges and highways and later engage in the construction of buildings. J. W. Feilmeth, for many years superintendent of the Marion Steam Shovel Co., will be president and treasurer, and W. E. Weston, secretary and general manager.

The Ohio Seamless Tube Co., Shelby, Ohio, is planning an addition, 100 x 380 ft.

The Timken Roller Bearing Co., Canton, Ohio, has near completion a factory providing 25,000 sq. ft. additional floor space, and will add 500 to its working force.

The Schauss Furniture Co., Norwalk, Ohio, has placed a contract with the Truscon Steel Co. for a new plant to replace the one recently burned.

The Northern Blower Co., Cleveland, during the past few days has taken the following orders for foundry and other

equipment: Dust collecting equipment for the Trumbull Mfg. Co., Warren, Ohio; dust arrester for the Ohio Steel Castings Co., Cleveland; sand blast and dust collecting and conveying equipment for the American Radiator Co., New York; core oven equipment for the Atlas Foundry Co., Cleveland; electric heating oven for the Cox Brothers Co., Cleveland; shaving exhaust system for the J. C. Kuhlman Car Co., Cleveland; heating system for the Timken Roller Bearing Co., Canton, Ohio; dust collecting system for the New Process Stove Co., Cleveland.

Fire, March 29, practically destroyed the plant of the U. S. Malleable Castings Co., Toledo, Ohio, the loss being estimated at \$500,000. Three hundred and fifty men will be thrown out of employment as a result.

Cincinnati

CINCINNATI, April 2.

THE machine-tool industry continues to gain in volume, and instances are more common where builders are booked up on some lines for the next three to four months. Additional men, whenever possible to secure them, are being put on, and overtime is employed to speed up production. Orders booked last week made a good aggregate, and with the closing of outstanding quotations, which is much easier now on account of the upward trend of prices, it is expected that a steady flow of orders will continue for many weeks.

Some of the larger purchasers last week included the Norfolk & Western Railroad, which bought practically all of the tools on its recent list; the American Can Co., which placed orders for 12 milling machines; the Ford Motor Co. for its Detroit and Hamilton, Ohio, plants; the Andrews Steel Co., and the Ohio Knife Co. Single orders also contributed to the aggregate and all sections of the country and all industries were represented. The Southern Railway will take bids April 5 on two engine lathes, one 90-in. wheel lathe, and one 600-ton driving wheel press, and is understood to be preparing an extensive list on which quotations will be asked shortly.

Prices continue strong. The advance on upright drills has become pretty general, the percentage running from 10 to 15. The Monarch line of lathes has been advanced 10 per cent, effective April 2.

The Huenefeld Co., Cincinnati, manufacturer of ranges, ovens and galvanized ware, intends to build an addition to its plant, which will require some additional machinery. Bids will be asked shortly.

The Kloeb-Cullum Stove & Furnace Co., Portsmouth, Ohio, has been incorporated with a capitalization of \$50,000 to manufacture gas stoves and gas and stove furnaces. The company has purchased the property of the Kloeb Stove Co., Marion, Ind. The Portsmouth plant will be at 509 Front Street. W. J. Cullum is one of the principal owners of the company.

The Hermann Mfg. Co., Lancaster, Ohio, manufacturer of tire building machines, is contemplating the erection of an extension. It is reported to have sufficient orders booked to take care of production for the full year.

The plant of the Columbus Brick & Terra Cotta Co. at Union Furnace, Ohio, has been acquired by a syndicate headed by W. T. Matthews, formerly manager of the Claycraft Mining & Brick Co., and it is the intention of the new owners to rebuild the plant and install new machinery for the manufacture of brick.

Detroit

DETROIT, April 2.

CONTRACT has been awarded by the Cope, Swift Co., Inc., 247 McDougall Avenue, Detroit, manufacturer of metal patterns, to the W. S. Pocock Co., Hammond Building, for a one-story addition to cost \$35,000.

The Monarch Stamping Co., 1402 Fourth Street, Detroit, is planning for the installation of sheet-metal working machinery for the manufacture of automobile products.

The Michigan Seating Co., Jackson, Mich., manufacturer of car seats, etc., has awarded contract to the North-Griffin Co., Cottland Street, for a five-story and basement addition, 88 x 132 ft., and one-story power house, estimated to cost \$110,000.

The Brickner & Kropf Machinery Co., Muskegon, Mich., has removed to a new building recently completed and plans

for increased production of tools, dies, etc. A department will be operated for the manufacture of experimental machinery.

A manual training department will be installed in the new three-story and basement high school, 155 x 190 ft., to be erected at Trenton, Mich., on which bids will be received until April 11. It will cost about \$175,000. R. A. LeRoy, Pratt Building, Kalamazoo, Mich., is architect.

The Bramer Tool & Machine Co., Detroit, has tentative plans for the establishment of a new factory at New Baltimore, Mich.

Fire, March 28, destroyed a one-story building at the plant of the Grand Rapids Showcase Co., Grand Rapids, Mich., 50 x 300 ft., with loss estimated at about \$100,000. It will be rebuilt.

The Ford Motor Co., Highland Park, Mich., has plans for a new one-story works at Flat Rock, Mich., 60 x 360 ft., to cost about \$90,000 with equipment. Albert Kahn, Marquette Building, Detroit, is architect and engineer.

The Detroit Twist Drill Co., 2108-16 West Fort Street, Detroit, is planning for the installation of a screw machine, with wire-feed attachment, and 200-lb. drop hammers.

The Wilton Tool Co., 2121 Grand River Boulevard, Detroit, manufacturer of dies, jigs, fixtures, etc., has acquired a one-story building, 75 x 200 ft., at 5835 Russell Street, from the Congdon-Russell Co., for \$255,000 and will remove its plant to this location. The capacity will be increased.

A manual training department will be installed in the new high school to be erected at Mancelona, Mich., estimated to cost \$90,000, for which an architect will soon be selected.

The Consumers Power Co., Grand Rapids, Mich., has plans for a steam power house at Ottawa Avenue and Fulton Street, estimated to cost \$85,000.

The Board of Works, Jackson, Mich., will make extensions in the waterworks, to include the installation of electrically-operated centrifugal pumps, boilers and other power equipment, estimated to cost \$400,000. Hoad, Deger, Shoecraft & Drury, Ann Arbor, Mich., are engineers.

Chicago

CHICAGO, April 2.

MARCH was a very satisfactory month for local dealers, and it is probable that sales totals were generally the heaviest since 1920. While this showing is accounted for in part by railroad buying, it is notable that business was well distributed over a wide range of industries. Purchases by the Illinois Central now aggregate over \$150,000, and when the tools still pending are bought, the total will probably reach \$300,000. The Union Pacific has purchased a number of machines against its list, including a milling machine, grinder, locomotive cylinder boring bar, bolt cutter and a nut tapper. The Chicago & Northwestern, which issued a list a week ago, is expected to put out additional inquiries. The Burlington is working on an extensive list, but has not indicated when it will be ready to issue. A recent fire at the Joliet shops of the Elgin, Joliet & Eastern will probably cause that road to expedite the purchase of the machinery for which it is now inquiring. There continue to be numerous sales of individual tools to miscellaneous industrial companies. In a single day last week a representative dealer took orders totaling \$28,000, which covered single machines ordered by different concerns. The Pawling & Harnischfeger Co. has completed purchases for its plant addition at Milwaukee, having bought an 18-in. lathe and a 24-in. crank shaper.

The Rock Island Lines have put out inquiries for a 44-in. motor-driven two-head boring mill, a motor-driven internal grinding machine for grinding hardened steel bushings, a 3 x 18-in. motor-driven floor grinder, and a motor-driven Pels-type No. 20, or equivalent, punch and splitting shear.

Prompt deliveries are no longer obtainable from all machine tool plants. Some of the higher-priced standard machines cannot now be bought for earlier than 60-day delivery. Prices continue to advance. Two leading lines of upright drills have gone up 10 per cent. An Ohio manufacturer of moderate-priced engine lathes has announced an advance of 10 per cent. A Western maker of disk grinding machines has marked up prices 12½ per cent, while an Eastern line of cylindrical grinders has gone up 10 per cent.

The Whiting Corporation, Harvey, Ill., has taken the following orders for cranes: One 10-ton hand-power crane for the Philadelphia Suburban Gas & Electric Co., Philadelphia; one 10-ton electric traveling crane for the Michelman Steel Construction Co., Quincy, Ill.; four 30-ton electric cranes for the Oliver Iron Mining Co., headquarters, St. Paul, Minn.; one 5-ton electric crane for Joseph T. Ryerson & Son, Chicago; one 15-ton hand-power crane for the Southern Illinois Light & Power Co., Chicago; one 200-ton locomotive hoist for the Maine Central Railroad; one 1½-cu. yd. bucket crane for the R. H. Beaumont Co., Philadelphia.

The Inland Glass Co., Chicago, recently incorporated with \$750,000 capital stock to manufacture illuminating glass ware, is about to build a plant at 6101 West Sixty-fifth Street to cost \$500,000. J. B. Weaver, former vice-president of the Pullman Co., Chicago, is president of the new organization. H. Pickett Withers is secretary and treasurer.

The Lincoln Ice Co., 4628 Greenview Avenue, Chicago, has purchased 170 ft. of frontage in Halsted Street, 30 ft. south of Dewey Place, as a site for a two-story ice plant to cost \$250,000.

The American Insulated Wire & Cable Co., 954 West Twenty-first Street, Chicago, has taken bids through Fox & Fox, 38 South Dearborn Street, on a one-story copper rod and wire plant, 105 x 300 ft., at South Kedzie Avenue and Drainage Canal, to cost \$100,000. The equipment will involve an investment of \$200,000.

The Mercury Mfg. Co., manufacturer of storage battery trucks, 4118 South Halsted Street, Chicago, has let contract for a one-story addition to cost \$40,000.

The Cleary Box Co., 1302 West Division Street, Chicago, has let contract for a one-story and basement factory and warehouse, 140 x 152 ft., at the southeast corner of Forty-eighth Place and Spaulding Avenue, to cost \$60,000.

The Advance Mirror Co., 2425 Division Street, Chicago, has let contracts for a two-story addition to cost \$6,000.

The Anderson Mfg. Co., manufacturer of Ford timers and can cappers, with general offices at South Bend, Ind., and plants at Chicago and Davenport, Iowa, will concentrate its manufacturing operations at Gary, Ind., where it has opened a plant at Tenth Street and Garfield Avenue, with about 75 employees. Offices have also been moved to Gary.

The Federal Stamping Co., manufacturer of cans, coal chutes, furnace cleaners, etc., Holland, Mich., has purchased 15 acres just east of the city limits, and will erect a plant for the manufacture of furnace registers and regulators.

The plant of the C. G. Spring Co., manufacturer of automobile springs, Kalamazoo, Mich., was recently destroyed by fire and it is probable that the factory will be rebuilt at Detroit.

The Elco Tool & Screw Corporation, Rockford, Ill., purchased the plant and equipment of the Rockford Mfg. Co., at public auction, and will use the increased space to expand its output of work screws.

The plant of the Champion Rivet Co., East Chicago, Ind., was recently damaged by fire.

The Allsteelequip Co., manufacturer of steel lockers, Aurora, Ill., will erect an addition, 80 x 140 ft., to cost \$15,000.

The Unique Mfg. Co., 438 South Clinton Street, Chicago, recently incorporated with \$6,000 capital stock, has taken over the business of the Unique Plumbers Furnace Co., which has been manufacturing blow torches, furnaces, soldering pots and supplies for several years. The company has no plans for further expansion at this time. Officers are Arthur A. Seibert, president; Z. M. Archambault, vice-president; and E. E. Goller, secretary and treasurer.

The Wood Conversion Co., Cloquet, Minn., manufacturer of wall board products, is planning the erection of a new one-story and basement factory. E. W. Davis is general manager.

The Board of Electric Light Trustees, Muscatine, Iowa, will receive bids until April 18 for equipment for a municipal electric power plant and system, including steam-operated power machinery, pumping machinery, lighting equipment, etc., as per plans and specifications at the office of Arthur L. Mullergren, Gates Building, Kansas City, Mo.

The Union Stock Yards & Transit Co., Union Stock Yards, Chicago, is planning to rebuild its machine shop at Exchange Avenue and Dexter Park, recently destroyed by fire.

A manual training department will be installed in the

two-story high school to be erected at Parkston, S. D., estimated to cost \$90,000. Schuemacher and Finkelhor, Boyce Breeley Building, Sioux City, S. D., are architects.

The Madison County Mining Co., Edwardsville, Ill., is planning for the installation of hoisting and mining machinery, ventilating apparatus and other equipment, estimated to cost \$75,000.

Milwaukee

MILWAUKEE, April 2.

LARGELY because purchases of tool room and production equipment are based on urgent needs rather than extensions of capacity to meet requirements, the recent advances in tool prices have not had the effect of curtailing demand, although in some cases buyers are scouring the market for used equipment in first class condition as an economy. March volume of transactions is generally reported in excess of February, sustaining the gain over January. Inquiry the past week was moderately active, portending some fair placements in April. While automotive industries seem to have filled the bulk of current needs, they are still engaged in picking up one or a few tools to piece out equipment. Structural fabricators are busy at capacity, and one large interest, the Warden-Allen Co., is enlarging its plant and installing about \$40,000 worth of punches and shears, placed with the Thomas Spacing Machine Co., Pittsburgh. Woodworking machinery is in active demand from makers of interior trim, furniture, doors, etc., who are pressed for capacity by the heavy movement in the direction of dwelling and apartment house construction.

The Metropolitan Water Supply and Sewerage Board, Brisbane, Australia, is advertising in the Milwaukee newspapers for sealed bids for furnishing and erecting additional pumping plant equipment in the Mt. Crosby pumping station. Bids will close June 26 in the office of J. P. Clark, acting secretary of the board. Several Milwaukee manufacturers intend to enter bids.

The Metal Ware Corporation, Two Rivers, Wis., which has increased its capital from \$300,000 to \$350,000, is taking over the manufacture of the electrical appliance line of the Harvey Electric Co., Chicago, and is supplementing its equipment with new and used tools. D. C. Hughes, production manager of the Harvey company, has been transferred to Two Rivers to supervise the department, in which electric sadirons, toasters and other electric products will be manufactured. C. F. Kirst is president of the Two Rivers company.

The Pittsburgh Plate Glass Co., 213 Lake Street, Milwaukee, is taking bids through Cahill & Douglas, consulting engineer, 217 West Water Street, local, for one 625-kva. 150 r.p.m. and one 125-kva. 225 r.p.m. generators for the power plant of the new \$1,000,000 paint and varnish works and research laboratories being erected in Milwaukee for the Patton-Pitcairn Division.

The Hingiss & Bessler Co., Kiel, Wis., has been incorporated with \$60,000 capital by Adolph and August Hingiss and A. Ben Bessler, until now a partnership as Hingiss & Bessler, distributors of power farm machinery. The sum of \$32,000 has been set aside for the construction and equipment of a new garage, warehouse and machine service building, work on which will start April 15. Miscellaneous tools are being purchased.

The Weisel Mfg. Co., LaCrosse, Wis., will erect a new plant for manufacturing millwork and interior trim, and is in the market for a large list of wood-working tools, with individual electric motor drive, boiler and generating equipment, etc. The main factory will be 75 x 200 ft., two stories, power plant, 30 x 40 ft., dry kilns, 60 x 90 ft. and the total cost with machinery is estimated at \$80,000. O. J. & R. E. Sorenson, local architects and engineers, are in charge.

The Thilmany Pulp & Paper Co., Kaukauna, Wis., will build a steam generating plant costing about \$50,000 to supplement its hydroelectric plant, but details have not yet been issued. C. C. Hickle is chief engineer.

The Board of Public Works, Hartford, Wis., is asking bids until April 17 for one steam-driven, two-stage air compressor unit with a capacity of 500 cu. yd. free air per min., and one steam turbine driven, 500-gal. centrifugal pump operating at 150-lb. pressure. William Radke is city clerk.

The Journal Co., Milwaukee, publisher, 182-184 Fourth

Street, has engaged Frank D. Chase, Inc., 645 North Michigan Avenue, Chicago to design a new printing and publishing plant estimated to cost \$500,000 at Fourth and State streets. Details will not be available until after May 1. The present typesetting, stereotyping and press equipment will be supplemented about 150 per cent. Harry J. Grant is publisher and general manager.

The Water & Light Commission, Clintonville, Wis., is inquiring for a 250-gal. triplex pumping unit and motor. Julius Spearbraker is secretary.

The Northern Foundry Co., Marinette, Wis., which has been idle for six months or longer, has turned over its plant to a new corporation, the Republic Match Co., successor to an Illinois corporation of similar name, which will retool the buildings for the manufacture of safety matches at a capacity of 3000 gross daily. The new concern is organized in Wisconsin with \$100,000 capital, among the principals being Frank J. Lauerman of Marinette and John L. Gaffney of Chicago.

Wisconsin Forge, Inc., Milwaukee, is a new \$10,000 corporation organized in Wisconsin to engage in the production of drop forging and other metal products. The incorporators are E. R. and Oscar Leverenz and Charles F. Stultemeyer, 677 Fifty-second Street, vice-president Globe Ball Bearing Co., Milwaukee. Details will be announced later.

The Milwaukee Parlor Frame Co., 1173 Twenty-sixth Avenue, Milwaukee, is enlarging its factory and is inquiring for several electric motors aggregating 75 hp. and miscellaneous wood-working machinery. August F. Abraham is president and general manager.

The West Bend Aluminum Co., West Bend, Wis., sustained an estimated loss of \$125,000 by fire on March 25. The main factory was only slightly damaged, but a large warehouse erected during the war and filled with finished stock was totally destroyed. A new warehouse, designed also for extension of production, will be erected at once at a cost of \$60,000.

Emil B. Gennrich, 717 Forty-sixth Street, Milwaukee, for several years secretary-treasurer Hercules Steel Casting Co., has obtained an option on a steel foundry in West Allis in behalf of local capital which intends to install electric melting equipment and reopen the works with 125 to 150 men. The foundry was built late in 1918 by the J. I. Case Threshing Machine Co., Racine, Wis., to supplement its steel casting facilities, but was operated only a short time. A statement will be made within a few days by Mr. Gennrich concerning his plans.

Bert Beauregard & Co., DePere, Wis., are low bidders at \$201,000 for the general construction of the proposed new West Bend, Wis., high school, which is to be erected this year and will contain manual training departments. The architects are Foeller, Schober & Stephenson, Green Bay, Wis.

The Teela Sheet Metal Co., Oshkosh, Wis., has been incorporated with \$40,000 capital to manufacture sheet metal products. It will succeed an existing firm owned by Richard J. Teela, and will build an addition this year.

Misericordia Hospital, 2224 Chestnut Street, Milwaukee, will start taking bids April 4 through Backes & Pfaller, local architects and engineers, for a \$150,000 improvement, consisting of a steam power plant, refrigerating house, laundry and refectory, 50 x 100 and 40 x 80 ft. New boilers, engines and a 20-ton artificial ice machine will be required. A five-story addition, 45 x 120 ft., to the main hospital will be erected at the same time.

Indiana

INDIANAPOLIS, April 2.

MACHINERY will soon be installed in the new plant of the Indianapolis Steel Products Co., Indianapolis, at New Palestine, Ind., now in course of construction. It will be one-story 100 x 200 ft., and is estimated to cost \$100,000 with equipment. The company will specialize in the production of small steel products and was organized recently by W. M. Lewis, Indianapolis, and Walter Bledsoe, Terre Haute, Ind.

A manual training department will be installed in the new two-story and basement high school to be erected at Nineteenth Street and Grand Avenue, Connersville, Ind., estimated to cost \$250,000, for which bids are being taken on a general contract. E. E. Dunlap & Co., 909 State Life Building, Indianapolis, are architects.

Weaver & Drake, Indianapolis, have arranged for the establishment of a plant at 4307 East Michigan Street, for the manufacture of furnaces and parts.

The Strattan Motors Corporation, Indianapolis, recently organized with a capital of \$500,000, has acquired the plant and business of the Monroe Automobile Co., West Eleventh Street. The works will be extended and con-

tinued in operation for the manufacture of Monroe cars. The company will also manufacture a low-priced automobile, to be known as the Strattan, and has negotiations under way for the purchase of a local plant. Frank S. Strattan, formerly of Cleveland, heads the new company; Frederick L. Barrows is vice-president, and Frank A. Kately, secretary and treasurer.

The Board of Trustees, Purdue University, West Washington Avenue, South Bend, Ind., is considering the erection of a new one-story power plant 85 x 105 ft., at West Lafayette, Ind., estimated to cost \$250,000, with machinery.

A. E. Teall, Indianapolis, has acquired property at 1203 East Washington Street, for the operation of a sheet metal works, including automobile radiator manufacture and repair.

The Board of Trustees, Indiana University, Bloomington, Ind., will receive bids until April 12 for equipment for a power house at the new James Whitcomb Riley Memorial Hospital, Indianapolis, including watertube boilers, mechanical stokers, electric generators and engines, etc., as per specifications at the office of Charles R. Ammerman, 529 Occidental Building, Indianapolis, consulting engineer.

Electrically-operated pumping machinery, power plant equipment and other machinery will be installed at the plants of the Indianapolis Water Co., Indianapolis, in connection with an extension and improvement program to cost \$1,000,000. C. H. Geist is president.

Ovens, conveying machinery, motors and other equipment will be installed at the plant at 1444 East Sixteenth Street, Indianapolis, by Charles Arnold, in connection with additions to cost in excess of \$40,000.

The Robert Berner Structural Steel Co., 401 South Harding Street, Indianapolis, Ind., recently incorporated with \$150,000 capital stock, will manufacture and erect structural steel and ornamental iron. It has taken over a building, 100 x 200 ft., equipped with traveling crane and complete air plant. All of the officers have been engaged in the structural steel business in Central Western territory since 1900. Robert Berner, president, has been vice-president of the Hetherington & Berner Co. for the past ten years. Other officers are R. H. Dickson, vice-president; A. W. Gage, secretary; F. C. Miller, treasurer and F. W. Gronauer, estimator.

The Central South

ST. LOUIS, April 2.

PLANS are being considered by the Faultless Pneumatic Tire Co., 414 Shuker Building, Kansas City, Mo., for new works at Independence, Mo., for the manufacture of automobile tires, estimated to cost \$55,000. Frank Y. Allen is head.

The Grand River Power Development Co., 307 Mayo Building, Tulsa, Okla., is perfecting plans for the initial units of its hydroelectric plants on the Grand River, to develop an ultimate capacity of 250,000 hp., to cost in excess of \$15,000,000. R. D. Salisbury is engineer.

The Oklahoma Light & Power Co., Pauls Valley, Okla., has acquired the power plant at Sulphur, Okla., and will take immediate possession. Extensions will be made and additional equipment installed.

The Common Council, Ponca City, Okla., is arranging a bond issue of \$80,000, the proceeds to be used for the installation of a municipal electric power plant. A. M. Stalnaker is city engineer.

The Phillipsburg Ice & Cold Storage Co., Phillipsburg, Kan., is arranging for the construction of a one-story ice-manufacturing and cold storage plant, estimated to cost \$70,000.

The Duncan Machinery Co., P. O. Box 265, Knoxville, Tenn., machinery dealer, is inquiring for tool-makers' lathes, new or rebuilt, 14 to 16 in.; belt-driven milling machine; engine lathe, 16 to 24 in.; universal tool grinder, and 36-in. radial press.

The Kansas City Southern Railway Co., Kansas City, Mo., is planning for additions in its car and locomotive repair shops at Port Arthur, Tex., including the installation of considerable machinery, to cost in excess of \$300,000; the company will also make enlargements and improvements in its shop at Pittsburg, Okla.

A manual training department will be installed in the new high school to be erected at Wellington, Kan., for which a special election has been called to vote bonds for \$270,000. T. W. Williamson & Co., Central National Bank Building, Topeka, Kan., are architects.

The Storis Ice & Coal Co., Bridge and Ferry Streets, Hannibal, Mo., is contemplating the erection of a new one-story ice-manufacturing plant to cost \$65,000. Walter Storis is president.

The Coleman-Nelson Corporation, Tulsa, Okla., has acquired the oil refinery of the Southern Oil Refining Co., Haskell, Okla., and will take immediate possession. Plans are in progress for extensions and additional equipment installation.

A manual training department will be installed in the new high school to be erected at Odessa, Mo., estimated to cost \$75,000. Bonds will soon be voted and an architect selected.

The Crane Enamelware Co., Chattanooga, Tenn., a subsidiary of the Crane Co., Chicago, has plans for extensions and improvements, including the installation of machinery, estimated to cost \$250,000.

The Derby Oil & Refining Co., Wichita, Kan., will increase the capacity of its local refinery from 4000 to 5000 bbl. per day. It will also make extensions and improvements in other plants and properties, and purposes to buy additional plants. A fund of more than \$2,000,000 has been arranged for expansion. A. L. Derby is president.

The Armature Rewinding Co., 3305 Washington Avenue, St. Louis, has awarded contract to the C. A. Welsh Construction Co., De Menil Building, for a two-story plant, 50 x 125 ft., at 605-11 North Leonard Avenue, for the manufacture and repair of electrical machinery, estimated to cost \$50,000.

The Prest-O-Lite Co., 30 East Forty-second Street, New York, a subsidiary of the National Carbide Corporation, same address, has acquired about 8 acres at Tulsa, Okla., for the erection of a new plant, to cost \$250,000 with machinery. The parent company is also considering the construction of another plant on an adjoining site for the Linde Air Products Co., also a subsidiary.

The Boone Consolidated Oil Corporation, Okmulgee, Okla., recently organized with a capital of \$15,000,000, will take over and consolidate the plants of the Okmulgee Producing & Refining Co., the Boone Oil Co., and other plants. It is arranging a fund of \$1,000,000 for extensions and improvements to include the installation of new machinery. George H. Currier and F. G. Gillock head the organization.

The Moore Monument Works, Chillicothe, Mo., will build a new one-story plant, 35 x 165 ft., and install cutting and polishing machinery, hoisting equipment and power apparatus. C. C. Vandenberg, 627 Finance Building, Kansas City, Mo., is architect.

A manual training department will be installed in the new two-story high school to be erected at Chillicothe, Mo., estimated to cost \$300,000, for which bids will soon be called on a general contract.

Iley Browning, Ashland, Ky., is organizing a company to build and operate an oil refinery at East Ashland, estimated to cost \$100,000 with machinery.

The Illinois Refining Co., Cushing, Okla., is planning the construction of a new pipe line from Cushing to the Tonkawa oilfields, about 60 miles, with a series of electrically-operated pumping plants at Summer and vicinity, estimated to cost \$225,000.

The Gulf States

BIRMINGHAM, April 2.

BIDS will be received by the United States Engineer Office, Florence, Ala., until April 20 for six sets of cylinder valves, and operating mechanism for the navigation lock, Wilson dam.

The Bessemer Coal, Iron & Land Co., Birmingham, contemplates the erection of a new plant to manufacture stove bolts, screws, nuts, etc.

Fire, March 28, destroyed a portion of the oil refinery of the Sinclair Refining Co., Merreux, near New Orleans, with loss estimated at \$700,000 with machinery. It is planned to rebuild. Headquarters of the company are at 45 Nassau Street, New York.

The Central Iron & Coal Co., Holt, Ala., will break ground at once for a new foundry, one-story, 150 x 365 ft., for cast iron pipe production, estimated to cost \$65,000.

The Mid-Kansas Oil Co., Caddo, Tex., has tentative plans for the rebuilding of its gasoline refinery and power house, partially destroyed by fire March 21 with loss reported at \$50,000.

Stahl Brothers, Gonzales, Tex., will commence the erection of a new one-story ice and cold storage plant, 110 x 150 ft., estimated to cost \$75,000.

The Mineral Springs Machine Co., P. O. Box 88, Mineral Springs, Tex., is in the market for an engine lathe, 14 x 26 in., for screw-cutting.

The City Council, Plaquemine, La., will take bids until April 17 for equipment for a municipal electric power plant and waterworks system, including three electric alternators, direct-connected to oil-operated engines; motor-driven

pumps, air compressors, and auxiliary equipment. Swanson-McGraw, Inc., New Orleans, La., is engineer.

The Standard Spring & Axle Co., Dallas, Tex., has been organized under State laws, with capital of \$30,000, to take over the company of the same name, with plant at 2614 Main Street. Work has commenced on a one-story extension, 50 x 100 ft., and additional equipment, including heat-treating furnaces, will be installed. L. K. Weaver is president; T. P. Steger and J. W. Hall are also interested in the company.

A manual training department will be installed in the new high school to be erected at Tyler, Tex., estimated to cost \$175,000, for which bonds have been voted. An architect will be selected to prepare plans.

The Tropical Radio Co., Miami, Fla., will build a power plant in connection with its new wireless terminal plant at Hialeah, near Miami, estimated to cost \$250,000 with machinery. Steel towers, 437 ft. high will be built.

The Marianna Light & Power Co., Marianna, Fla., will build a new hydroelectric power plant with initial capacity of 3000 hp., estimated to cost \$90,000.

The Muscle Shoals, Birmingham & Pensacola Railway Co., Pensacola, Fla., is planning the construction of new automatic coaling plants, electrically-operating pumping and water supply stations and other mechanical installation. A portion of a \$600,000 fund, now being arranged, will be used for the work. A. S. Butteworth is chief engineer.

Elevating and conveying machinery, power equipment, etc., will be installed in the new eight-story warehouse to be constructed on the waterfront, Tampa, Fla., by the Swann Terminal Co., estimated to cost \$550,000.

Ovens, conveying and power equipment will be installed in the new plant to be constructed by Winkleman's Baking Co., Dallas, Tex., estimated to cost \$250,000 with machinery. H. T. Winkleman is president.

The Tex-Pata Pipe Line Co., Mirando, Tex., has plans under consideration for the erection of a new refinery, with initial daily capacity of 2000 bbl. Oliver W. Killam is president.

The Board of Works, Miami, Fla., is planning the installation of electrically-operated pumping machinery in connection with extensions and improvements in the waterworks, for which bonds for \$750,000 recently were voted.

The Texhoma Oil & Refining Co., Electra, Tex., will build a new gasoline refinery, estimated to cost \$100,000 including machinery.

The Lacy Oak Flooring Co., Longview, Tex., is planning the erection of a new hardwood mill near the city limits, Dallas, Tex., estimated to cost \$150,000, with machinery. Rogers Lacy, Longview, is president; E. D. Rogers is vice-president and general manager.

The Helius Gasoline Co., Dallas, Tex., is perfecting plans for a new refinery, with power house, in the vicinity of Brownwood, Tex., estimated to cost \$250,000 including machinery.

The Common Council, Wills Point, Tex., is arranging for a bond issue of \$25,000, the proceeds to be used for the installation of a municipal electric power plant.

The O. K. Battery Co., Dallas, Tex., has leased the two-story building at 934-36 North Lancaster Avenue for the establishment of a plant to manufacture electric batteries and electrical specialties.

The Centrifugal Concrete Products Co. of America, Dallas, Tex., has leased a building for the establishment of a plant to manufacture special concrete pipe and similar products.

The Pacific Coast

SAN FRANCISCO, March 28.

PLANS are being prepared for a new one-story plant for the Kleiber Motor Co., Los Angeles, at Santa Fe Avenue and Twenty-fourth Street, for parts production and assembling, estimated to cost \$50,000. E. B. Rust, 523 Black Building, is architect.

Daniel O'Neil, 273 Minna Street, San Francisco, has plans for a one and two-story machine shop, estimated to cost \$25,000. J. E. Kraft & Sons, Phelan Building, are architects.

The Western Pipe & Steel Co., Seattle, is planning to rebuild the portion of its works destroyed by fire March 19, with loss estimated \$75,000 including equipment.

A. M. Bator, Aberdeen, Wash., and A. G. Basil, Raymond, Wash., are organizing a company to build and operate a veneer mill at Hoquiam, Wash. A site has been acquired on the Hoquiam River and plans are being drawn. The works will include a power house and is estimated to cost \$60,000, with machinery.

Plans are being prepared for an addition to the manual

training department at the John Muir junior high school, Los Angeles, estimated to cost \$100,000; a portion of the structure will be used as a domestic science department. John C. Austin, 1125 Detwiler Building, is architect.

The Walsh Automatic Coupling Co., Los Angeles, care of Miller & Farrell, Western Mutual Life Building, architects, has plans for one-story works at San Pedro, 150 x 180 ft., to cost \$65,000. A portion of the structure will be equipped as a foundry. A 1½ to 2-ton traveling crane will be installed.

The Quality Electric Co., Los Angeles, manufacturer of electrical products, has commissioned W. Douglas Lee, 610 Grosse Building, architect, to prepare plans for a new one-story factory, 40 x 175 ft., at 812 San Pedro Street.

The Los Angeles Gas & Electric Co., Los Angeles, has arranged a fund of \$2,000,000, for extensions and improvements in its electric power plants and system, to include the installation of a 17,500-kw. turbo-generator and auxiliary machinery; 12,000 electric meters; cables and other equipment.

The Astoria Brick & Building Material Co., Astoria, Ore., will build a new plant, 100 x 200 ft., for the manufacture of concrete brick and blocks, to have an initial daily capacity of 65,000 brick per day. A power house will also be erected.

The Washington Iron Works, Seattle, will build a one-story machine shop, 126 x 570 ft., to cost about \$75,000, in connection with other extensions now in progress estimated at \$200,000. A large electric traveling crane will be installed.

The San Gorgonio Power Co., San Bernardino, Cal., has plans for two hydroelectric power houses at Banning and Beaumont, Cal., estimated to cost \$450,000 with machinery. R. R. Scarborough is president.

The Guadalupe Lime & Cement Co., 16 California Street, San Francisco, is planning the erection of a new plant in the vicinity of San Jose, Cal., to cost about \$250,000 with machinery. A power house and machine shop will be erected.

The Southern California Edison Co., Los Angeles, will make extensions and improvements in its electric power plants and system at Venice and vicinity, estimated to cost \$408,000.

Canada

TORONTO, April 2.

ACCORDING to local machine-tool dealers and builders the month just closed was the best that has been experienced this year in point of sales, and some state that it was the best month in three years. The placing of orders for railroad account furnished considerable business, while the automobile industry, iron and steel manufacturers and other interests placed orders for new works, additions and replacements. The demand for equipment continues to improve and sales are steadily being closed for production equipment to take the place of old machinery that is not capable of the high efficiency necessary. Inquiry is also improving and considerable prospective business is in sight. Prices are increasing in some lines and all quotations are strong.

Bids will be received by the City Council, Toronto, C. A. Maguire, chairman, until April 10, for a 3,000,000-gal. Imperial centrifugal sewage sludge pump, direct, connected to electric motor. R. C. Harris, City Hall, is engineer.

R. Fowlie, Dixon Street, Galt, Ont., is in the market for garage and repair shop equipment.

R. E. Morris, Hyde Park, Ont., is in the market for equipment for a garage and repair shop to cost \$40,000.

The Empire Brass Mfg. Co., London, Ont., is in the market for two molding machines, preferably the Tabor type. It will also install an electric core oven.

The Northern Canada Power Co., Timmins, Ont., plans to build a fourth hydroelectric plant on the Mattagami River at Kenogamišee Falls, to develop 5000 hp., under a head of 70 ft. The cost, including transmission line, is \$750,000.

Goodwin's Ltd., Montreal, will rebuild a garage recently destroyed by fire at a cost of \$100,000. New machinery and equipment will be purchased.

The Dominion Iron & Steel Co., Sydney, N. S., will install an electric coal conveyor at the North Sydney plant. Douglas Hives is purchasing agent.

The British Empire Steel Corporation, Canada Cement Building, Montreal, will enlarge its electric plant at New Waterford, N. S., and install additional equipment.

The Atlas Crucible Steel Co., Ltd., Welland, Ont., is in the market for a 500 hp., 750 r.p.m., 4400 volts, 25 cycle, three phase, wound rotor or slip ring, 40 deg. rating motor.

The Town Council, Englehart, Ont., is contemplating the installation of a compressed air system for deep wells, replacing the present pumping system.

The National Cement Co., Montreal, recently incorporated with a capital stock of \$4,000,000, has purchased a site and will commence the erection of a new plant in May. Louis Hurtibise, room 300, 90 St. James Street, Montreal, is chief engineer. Bids will be called about April 15 by Edmond Cote, general manager.

The Manitoba Pulp & Paper Co., Ltd., Winnipeg, Man., has been incorporated with a capital stock of \$3,000,000 by John D. McArthur, Bruce W. Thompson, Bryon J. McLeod and others as provisional directors. The company will build a 20-mile railroad and news print paper mill at Fort Alexander, Man., at an estimated total cost of \$4,000,000. J. A. Hill, manager, is supervising the work of clearing the ground, and construction of the mill will begin about May 1. B. W. Thompson is vice-president of the company.

The Asbestos Corporation, Montreal, has awarded the general contract to W. S. D. Cook, Montreal, for the erection of a \$500,000 mill at Thetford Mines, Que.

The A. J. Kirstin Canadian Co., Ltd., Sault Ste. Marie, Ont., manufacturer of stump pullers and other machinery, has recently been reorganized as the Kirstin-Hase Co., Ltd. The company recently purchased a new building, 50 x 130 ft., and will commence operations within the next few weeks.

An extension is under way to the plant of the Auto Specialty Mfg. Co., Windsor, Ont., manufacturer of axle housings and other automobile parts. Plans call for two additional units, and it is expected that work on these will be started within the next 18 months.

The Canadian Sidway Co., Ltd., Toronto, has secured new premises at the corner of Pelham and Osler avenues and expects to start operations in the new plant this month. New machinery valued at about \$70,000 is being installed, and the output of children's vehicles will be increased about 70 per cent in the new quarters.

The C. H. Wills & Co., manufacturer of motor cars, Mayville, Mich., are contemplating the erection of a plant in Canada. The company owns property adjoining that of the Dominion Alloy Steel Corporation, at Sarnia, Ont.

STEEL AND INDUSTRIAL STOCKS

Steel Stocks Set the Pace Through a Week of Fluctuating Movements

A tone of pessimism set in early last week and the revival in general stocks came on the wings of a spurt in steel stocks. Interest attached to Steel common beginning Tuesday; the issue rose a point on heavy buying. Industrials made like gains. Republic, Bethlehem B and Gulf States Steel moved up vigorously. At midweek, Steel crossed 108, Gulf States took on two points and there was renewed buying of prominent steels. In large measure industrials moved in sympathy with the steel list. Recessions came periodically, but losses were generally overtaken. Weekend trading was dull, but the tone at the close grew stronger. Selling of Bethlehem B proved an attraction and was looked upon as a sequence to the addition of nearly 1,000,000 shares of Bethlehem stock in connection with the Midvale purchase. For the first time since late 1921 an increase is reported in the number of Steel Corporation stockholders. Dividends were sent to 94,198 individuals.

The range of prices on active iron and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Am. B. S. & Fdy.	79	81	Inland Steel....	49 1/4	50 1/2
Am. B.S. & F. pf.107	107	100 1/2	Int. Har.	89 1/2	91
American Can....	96 1/2	100 1/2	Int. Har. pf....	114	114
Am. Can pf....	110	111 1/4	Lima Loco....	70 1/2	73 1/2
Am. Car & F. 179 1/2	182	179 1/2	Midvale Steel ..	28 1/2	30 1/2
Am. Car & F. pf.121	121	121	Nat.-Acme	14	14 1/2
American Loco....	132 1/4	135	Nat. En. & Stm.	69 1/2	70 1/2
Am. Loco. pf....	117	117 1/4	N. Y. Air Brake	35 1/2	38
Am. Radiator...	83	84 1/2	Otis Steel	12 1/2	14 1/2
Am. Steel Fdries.	39	40 1/2	Otis Steel pf....	68 1/2	70 1/2
Am. Steel F. pf.101 1/2	102	102	Pressed Steel...	67 1/2	69
Baldwin Loco....	137 1/2	141 1/2	Pressed Stl. pf....	91 1/2	91 1/2
Bald. Loco. pf....	111	111	Ry. Stl. Spring....	118	119
Bethlehem Steel.	63 1/2	63 1/2	Repligie Steel ..	28 1/2	28 1/2
Beth. Stl. Cl. B. 63 1/2	63 1/2	63 1/2	Republic	50 1/2	63 1/2
Beth. Stl 8% pf.108 1/2	108 1/2	108 1/2	Republic pf....	95	95 1/2
Brier Hill....	17	17	Sloss	52	54
Br. Em. Steel....	7 1/2	7 1/2	Sloss pf....	80	82 1/2
Br. Em. Stl. 23 1/2	24	24	Steel of Canada.	76 1/2	78
Cambria Steel....	125	125	Superior Steel..	33	33
Chic. Pneu. Tool	84 1/2	87 1/2	Transue-Williams	25 1/2	25 1/2
Colo. Fuel....	28	29 1/2	Un. Alloy Steel..	37	37 1/2
Crucible Steel....	78%	81%	U. S. Pipe.....	31	31 1/2
Crucible Stl. pf. 90	90	90	U. S. Pipe pf....	69 1/2	69 1/2
Deere pf....	71	72	U. S. Steel.....	105 1/2	108 1/2
Gen. Electric....	183	186 1/2	U. S. Steel pf....	118 1/2	119
Gt. No. Ore Cert.	34	35 1/2	Vanadium Steel.	39 1/2	42 1/2
Gulf States Stl.	96 1/2	101	Va. I. C. & Coke	62 1/2	62 1/2
Gulf S. Stl. 1 pf.103 1/2	103 1/2	103 1/2	Whouse Air Br.	118	120
Harb. Walker....	116 1/2	116 1/2			

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-ferrous Metals."

Iron and Soft Steel Bars and Shapes	
Bars:	
Refined iron bars, base price.....	3.34c.
Swedish bars, base price.....	7.50c.
Soft steel bars, base price.....	3.34c.
Hoops, base price	5.19c.
Bands, base price	4.14c.
Beams and channels, angles and tees 3 in. x 1/4 in. and larger, base.....	3.44c.
Channels, angles and tees under 3 in. x 1/4 in., base	3.34c.

Merchant Steel	
	Per Lb.
Tire, 1 1/2 x 1/2 in. and larger	3.35c.
(Smooth finish, 1 to 2 1/2 x 1/4 in. and larger).....	3.55c.
Toe-calk, 1/2 x 3/8 in. and larger.....	4.30c.
Cold-rolled strip, soft and quarter hard..	7.00c. to 8.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds	4.20c.
Squares, flats and hex.....	4.70c.
Standard tool steel, base price.....	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High speed steel, 18 per cent tungsten.....	75c. to 80c.

Tank Plates—Steel	
	Per Lb.
Sheets	
Blue Annealed	Per Lb.
No. 10	4.34c.
No. 12	4.39c.
No. 14	4.44c.
No. 16	4.54c.

Box Annealed—Black	
Soft Steel	Blued Stove
C. R., One Pass.	Pipe Sheet
Per Lb.	Per Lb.
Nos. 18 to 20	4.70c. to 5.30c.
Nos. 22 and 24.....	4.75c. to 5.35c.
No. 26	4.80c. to 5.15c.
No. 28	4.90c. to 5.50c.
No. 30	5.10c. to 5.75c.
No. 28 and lighter, 36 in. wide, 10c. higher.	

Galvanized	
	Per Lb.
No. 14	5.00c. to 5.60c.
No. 16	5.15c. to 5.75c.
Nos. 18 and 20	5.30c. to 5.90c.
Nos. 22 and 24	5.45c. to 5.95c.
No. 26	5.60c. to 6.20c.
No. 27	5.75c. to 6.35c.
No. 28	5.90c. to 6.50c.
No. 30	6.40c. to 7.00c.
No. 28 and lighter, 36 in. wide, 20c. higher.	

Welded Pipe	
Standard Steel	Wrought Iron
Black	Galv.
1/2 in. Butt... —47	—31
3/4 in. Butt... —52	—39
1-3 in. Butt.. —54	—41
2 1/2-6 in. Lap. —50	—37
7-8 in. Lap... —47	—20
9-12 in. Lap.. —42	—18
Black	
Galv.	
1/2 in. Butt... —47	—4
3/4 in. Butt... —52	—11
1-3 in. Butt.. —54	—14
2 1/2-6 in. Lap. —50	—5
7-8 in. Lap... —47	—9
9-12 in. Lap.. —42	—3
+19	
+9	
+6	
+14	
+9	
+16	

Steel Wire	
BASE PRICE* ON NO. 9 GAGE AND COARSER	Per Lb.
Bright basic	5.00c.
Annealed soft	5.00c.
Galvanized annealed	5.65c.
Coppered basic	5.65c.
Tinned soft Bessemer	6.65c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASIS PRICE

High brass sheet	21 1/2c. to 22 1/2c.
High brass wire	22 1/2c. to 23 1/2c.
Brass rods	19 1/2c. to 20 1/2c.
Brass tube, brazed	28 1/2c. to 29 1/2c.
Brass tube, seamless	25 1/2c. to 26 1/2c.
Copper tube, seamless	27 1/2c. to 28 c.

Copper Sheets

Sheet copper, hot rolled, 24 oz., 25c. to 26c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Coke—14-20

Grade	Grade	Primo	Wasters
"AAA"	"A"	80 lb. \$6.30	\$6.05
Charcoal	Charcoal	90 lb. 6.40	6.15
14x20	14x20	100 lb. 6.50	6.25
IC.. \$11.00	\$9.75	IC.. 6.65	6.40
IX.. 12.25	11.00	IX.. 7.65	7.40
IXX.. 13.50	12.25	IXX.. 8.65	8.40
IXXX.. 14.75	13.50	IXXX.. 9.65	9.40
IXXXX.. 16.50	14.75	IXXXX.. 10.65	10.40

Terne Plates

8-lb. coating, 14 x 20

100 lb.	\$7.00
IC	7.25
IX	7.50
Fire door stock	9.00

Tin

Straits pig	53c.
Bar	60c. to 65c.

Copper

Lake ingot	19 c.
Electrolytic	18 1/2c.
Casting	18 1/2c.

Spelter and Sheet Zinc

Western spelter	9 1/2c.
Sheet zinc, No. 9 base, casks.....	11c. open 11 1/2c.

Lead and Solder*

American pig lead	9 1/2c. to 9 3/4c.
Bar lead	12 1/2c. to 14c.
Solder, 1/2 and 1/2 guaranteed	37c.
No. 1 solder	35c.
Refined solder	32c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	10c. to 11c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb....30c. to 31c.

Old Metals

The market is stronger and trading more active. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	14.50
Copper, heavy wire	13.75
Copper, light and bottoms	11.75
Brass, heavy	8.25
Brass, light	7.00
Heavy machine composition	11.50
No. 1 yellow brass turnings	8.50
No. 1 red brass or composition turnings.....	10.50
Lead, heavy	7.25
Lead, tea	5.25
Zinc	5.00

1
0
5
75
25
00
50
50
50
25
25
00